



Valbart API 6D & 6A Trunnion mounted ball valves

Bolted body side entry • Welded body • Top entry



Experience In Motion

- A • Headquarters
- B • Production
- C • Production
- D • Warehouse



Profile

Valbart was founded in 2003 as a joint venture. Since then, the company has witnessed tremendous growth and has been recognized as the fastest growing firm in its sector.

Acquired in 2010 by Flowserve Corporation following a long period of sustained growth, Valbart further expanded its technical resources and product offerings.

The company specializes in designing and manufacturing API 6A and API 6D Trunnion Mounted ball and API 6D Gate Valves. The company is driven by constant innovation to increase its existing range of products. Apart from being one of the leading suppliers of TMBV, Valbart is also recognized for its production of Trunnion Mounted Control Ball Valves, Cryogenic Valves, DBB Valves and Rising Stem Friction Free Ball Valves.

The technical know-how, design and experience in producing TMBV's are Valbart's strongest assets. The company continuously improves and builds on these assets. The employment of highly talented and experienced professionals in key technical management positions is proof of the Company's commitment to a continuous improvement.

With a highly equipped facility distributed in four buildings with a total internal area of 18,000 sqm (194,000 sq. ft), Valbart aims at continuing to produce and provide valves of the highest quality and with a growth reflecting the one experienced so far.

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Product range

Core products		Specialized applications
 API 6D/6A Side Entry (Up to 64")	 API 6D Slab & Exp. T.C. Gate (up to 64")	 Cryogenic
 API 6D/6A Top Entry (Up to 56")	 Trunnion Mounted Control Ball Valve	 Subsea
 API 6D/6A Welded Body (Up to 64")	 Rising Stem Ball Valve	 Double Block & Bleed

A • Side-Entry

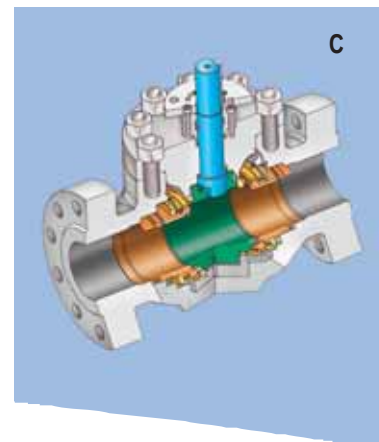
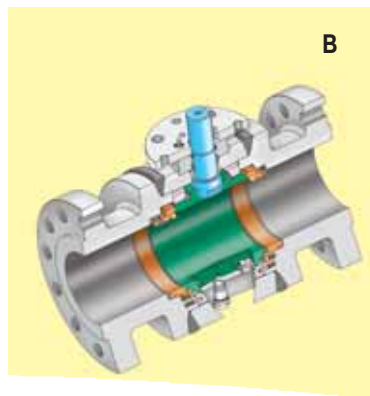
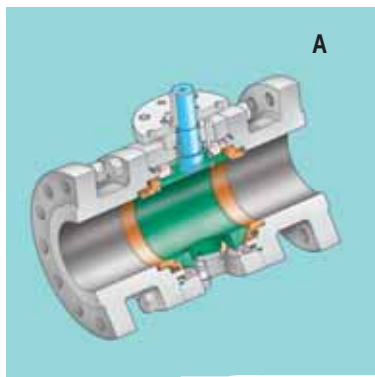
The Side-Entry design is the most popular.

B • Welded body

No leak path through the body.

C • Top-entry

Design for easy in-line maintenance.



Product range

PRODUCT RANGE

API 6D

API 6A

Service	Size (in/mm) – Pressure Range				Size (in/mm) – Pressure Range(1)				
	ASME 150–600	ASME 900	ASME 1500	ASME 2500	API 2000	API 3000	API 5000	API 10000	API 15000

SIDE-ENTRY - MOD. VB2 /VB3

Standard	1–64 25–1600	1–56 25–1400	1–40 25–1000	1–32 25–800	1–18 25–450	1–18 25–450	1–18 25–450	1–18 25–450	1–12 25–300
Low temperature -46°C / -50°F	1–64 25–1600	1–56 25–1400	1–40 25–1000	1–32 25–800	1–18 25–450	1–18 25–450	1–18 25–450	1–18 25–450	1–12 25–300
Cryogenic -47°C to -196°C / -52°F to -320°F	1–36 25–900	1–36 25–900	1–24 25–600	1–12 25–400	N/A	N/A	N/A	N/A	N/A
Sub sea	1–64 25–1600	1–56 25–1400	1–40 25–1000	1–32 25–800	1–18 25–450	1–18 25–450	1–18 25–450	1–18 25–450	1–12 25–300
Underground	1–64 25–1600	1–56 25–1400	1–40 25–1000	1–32 25–800	1–18 25–450	1–18 25–450	1–18 25–450	1–18 25–450	1–12 25–300
High temperature 280°C to 450°C / 536°F to 842°F	1–36 25–900	1–36 25–900	1–24 25–600	1–12 25–400	1–18 25–450	1–18 25–450	1–18 25–450	1–18 25–450	1–12 25–300
Underground - low temperature -46°C / -50°F	1–64 25–1600	1–56 25–1400	1–40 25–1000	1–32 25–800	1–18 25–450	1–18 25–450	1–18 25–450	1–18 25–450	1–12 25–300

WELDED BODY - MOD. VW1

Standard	2–64 50–1600	2–36 50–900	2–16 50–400	N/A
Low temperature -46°C / -50°F	2–64 50–1600	2–36 50–900	2–16 50–400	N/A
Sub sea	2–64 50–1600	2–36 50–900	2–16 50–400	N/A
Underground	2–64 50–1600	2–36 50–900	2–16 50–400	N/A
Underground - low temperature -46°C / -50°F	2–64 50–1600	2–36 50–900	2–16 50–400	N/A

TOP-ENTRY - MOD. VT1

Standard	2–56 50–1400	2–48 50–1200	2–30 50–750	2–16 50–400	1–8 25–200	1–8 25–200	1–8 25–200	1–8 25–200	N/A
Low temperature -46°C / -50°F	2–56 50–1400	2–48 50–1200	2–30 50–750	2–16 50–400	1–8 25–200	1–8 25–200	1–8 25–200	1–8 25–200	N/A
Cryogenic -47°C to -196°C / -52°F to -320°F	2–36 50–900	2–36 50–900	2–24 50–600	2–12 50–300	N/A	N/A	N/A	N/A	N/A
Sub sea	2–56 50–1400	2–48 50–1200	2–30 50–750	2–16 50–400	1–8 25–200	1–8 25–200	1–8 25–200	1–8 25–200	N/A
Underground	2–56 50–1400	2–48 50–1200	2–30 50–750	2–16 50–400	1–8 25–200	1–8 25–200	1–8 25–200	1–8 25–200	N/A
High temperature 280°C to 450°C / 536°F to 842°F	2–36 50–900	2–36 50–900	2–24 50–600	2–12 50–300	1–18 25–450	1–18 25–450	1–18 25–450	1–18 25–450	N/A
Underground - low temperature -46°C / -50°F	2–56 50–1400	2–48 50–1200	2–30 50–750	2–16 50–400	1–8 25–200	1–8 25–200	1–8 25–200	1–8 25–200	N/A

(1) The API designation is the actual working pressure in psi.



Manufacturing capabilities

VALBART

Valbart, located in Mezzago, Italy, is a world leader in industrial valve manufacturing, and a group of professional engineers with long standing experience in ball valve design and manufacturing.

Valbart R&D department

Valbart's R&D facilities provide the company with extensive testing capabilities such as qualification tests to determine reliability and service life under critical operating conditions and pressure testing in accordance with the ASME code as well as the other industry standards (see page 32 for details).

In-house capabilities

Valbart has a machining shop and a welding shop in house.

The welding facility is equipped with hi-tech SAW robots operated by fully qualified welders.

The NDT examinations of the weld bevels and beams are carried out by our qualified QC personnel using our own ultrasonic, magnetic particle, and dye penetrant equipment.

Certification and approvals

Valbart's quality program is fully compliant with the industry's most stringent standards.

Valbart holds all major approvals, including ISO 9001:2000, PED, API 6D, API 6A, API 6D SS, SIL 3, and TA-Luft.

Inventory of finished components

Valbart has an inventory of finished components stored in our workshop facility that are fully identified with a code number.

The storage area will keep expanding along with our company's growth.





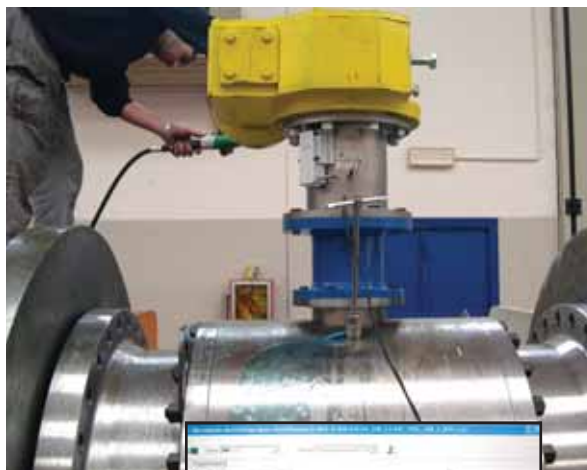
Engineered solutions

Valbart has a strong Engineering Design Group with extensive experience in critical applications and hands-on expertise using advanced software and technology that meet the most demanding performance requirements.

Our R&D and testing facilities enable us to run the most comprehensive testing programs and accommodate valves up to 64" (1600 mm) in diameter and 40 tons in weight. In addition, given our proximity to major university and testing laboratories, we're well positioned to handle any extremely specialized tests – such as the hyperbaric test for sub-sea valves – that cannot be done in house.



Cryogenic testing on an 8" (20 mm) class 300 valve.



Torque measuring device with computerized results.

48" Class 600 valve with Electrohydraulic actuator





Machinery and equipment

Valbart's production equipment uses the latest automation technology and is specially engineered to meet the requirements of advanced large valve manufacturing.

This includes large CNC horizontal and vertical boring mills with tool changers, NC lathes, and NC machining centers for valve bodies and parts. Valbart has qualified procedures, welders, and welding operators for all major weld processes.

The production testing equipment is designed to safely and efficiently test 100% of the current production of low- and high-pressure valves in strict accordance with industry codes and standards, as well as customer-imposed criteria.

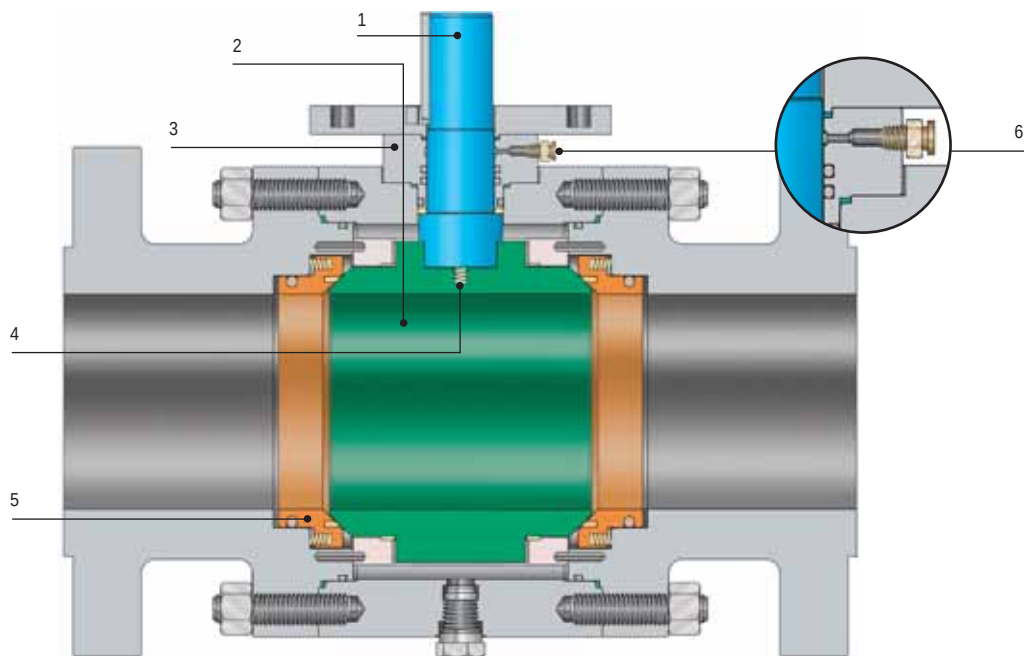


SAW welding robot applying weld overlay on valve closure



Boring machine.

Valbart's standard trunnion-mounted ball valves offer increased value by incorporating advanced design features.



VALBART trunnion-mounted ball valve design features

1 Independent ball and stem

The ball and stem are independent to minimize the effect of the side thrust generated by the pressure acting on the ball.

2 Trunnion-mounted ball

The ball is fixed and the seat rings are floating, free to move along the valve axis.

Side load generated by the pressure acting on the ball is absorbed by bearings.

At low pressure, the seat sealing action is achieved by the thrust of the springs acting on the seat rings.

As the pressure increases, the fluid pressure pushes the seat rings against the ball.

3 Anti-blowout stem

Stem is retained by the stem cover (other designs available on request).

4 Anti-static design

The electrical conductance continuity between all the metallic components is guaranteed and certified.

5 Floating self-relieving seat rings

Two independent floating seat rings assure the bi-directional tightness of the valve. The seats are carefully designed to minimize the torque required to operate the valves without losing sealing power, which is assured from zero differential pressure to the valve's maximum rated pressure.

Self-relieving seats are supplied as a standard feature. Double piston or combination seats (self-relieving/upstream, double piston/down-stream) can be supplied upon request.

6 Emergency sealant injection

Each valve is supplied complete with emergency sealant injection feature located between the upper O-rings and the graphite gasket.

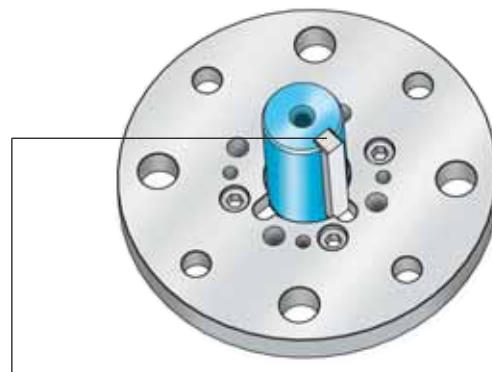
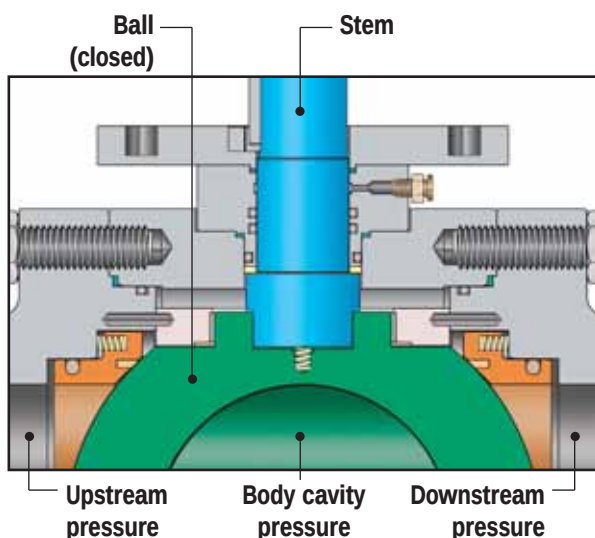
An emergency sealant injection feature on seats is available upon request only, for 6" full port and larger.

Emergency grease injection features are not available on low-and high-temperature valves.

Low emission valves

Accurate machining of stem and bonnet sealing surfaces ensures compliance with the most severe pollution-control regulations.





Ball seat alignment

Mechanical stops ensure control over ball rotation.

Double Block and Bleed

All Valbart trunnion-mounted ball valves are designed and manufactured to seal off both seats at the same time and allow bleeding of the entrapped cavity pressure (DBB) with the ball in the closed position.

Both seats hold their respective pressures independent of the body cavity pressure. The double block and bleed feature makes it possible to do such things as flush the valve under pressure and verify that the seats are sealing properly.

Stem Sealing

Two O-rings and one graphite gasket ensure the stem seal. The graphite gasket can be replaced while the valve is under pressure and with the ball in any position. First, release any pressure that may exist between the upper O-ring and the graphite gasket through the grease injection fitting hole and then remove the adaptor plate.

The O-rings can be replaced with the valve in fully open or fully closed position by removing the stem cover (after having released all the pressure in the body cavity).

Body Sealing

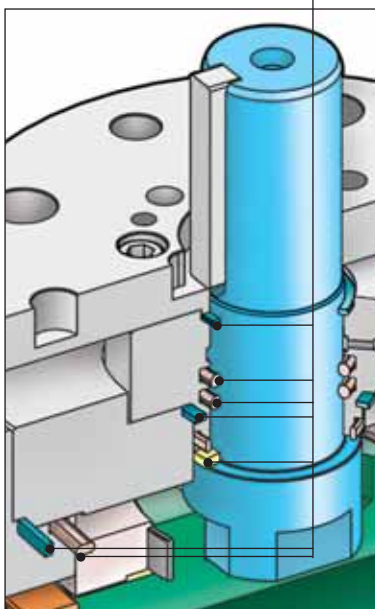
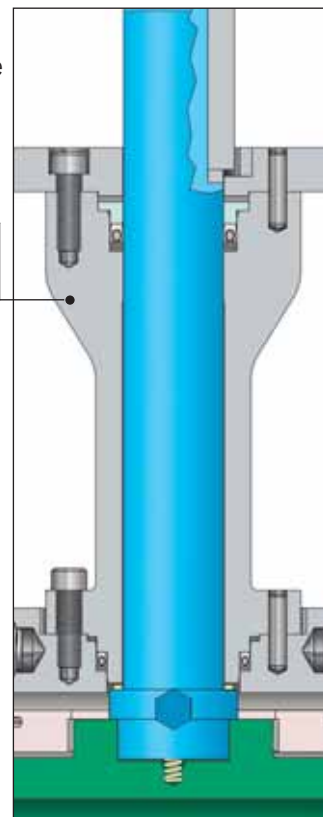
The double sealing action of O-rings and graphite gaskets in all the static joints of the body components ensures zero leakage and the Fire Safe feature.

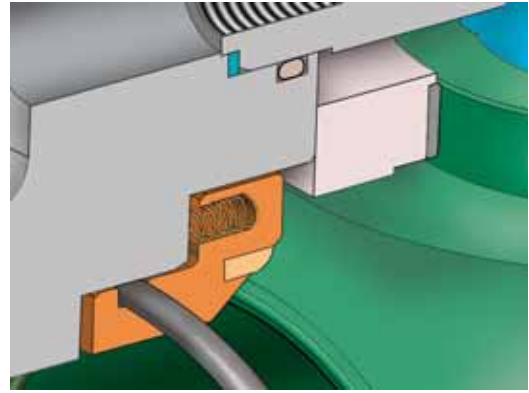
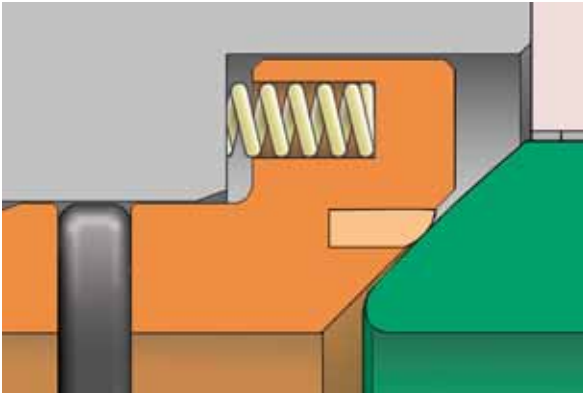
Lip-seal rings and/or graphite gaskets can be used for special service.

Extended Bonnet

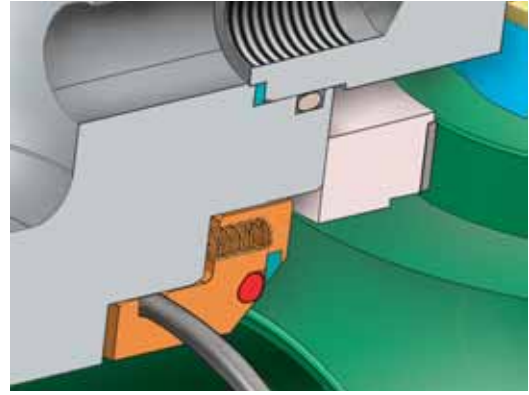
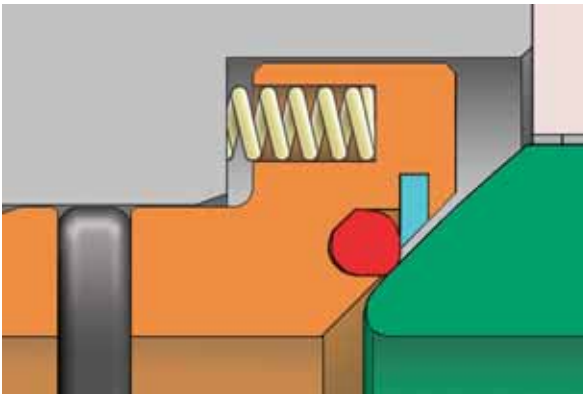
Valve designs are available with extended bonnets for applications in extreme temperature service.

Extended bonnets are recommended for service at temperatures below -50°C (-58°F) or above 220°C (428°F).





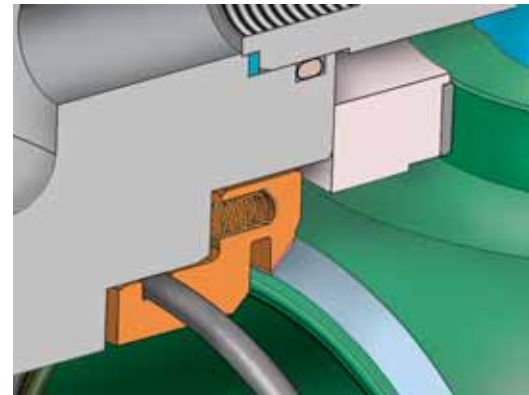
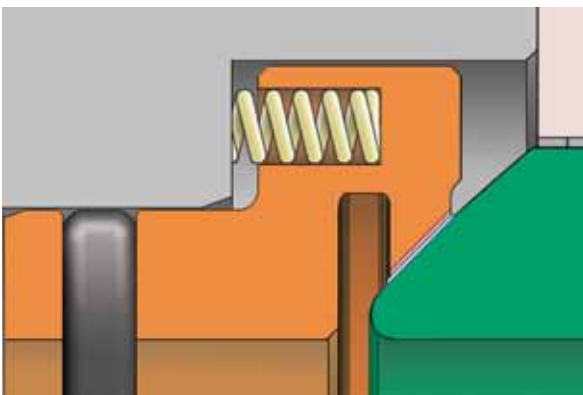
All sizes and pressure classes.



6" and larger – ASME class 150–600 only

Soft-seated valves (primary metal, secondary soft)

In valves designed for standard service, a resilient material is inserted into the metal seat holder to provide a soft seating action in addition to the metal to metal seating between the ball and the seat rings.



Metal-seated valves

Valves designed for abrasive service or for operation in temperatures that prohibit the use of a resilient material have seating action provided by the metal-to-metal contact between the ball and the seat rings. Seating faces are hardfaced.

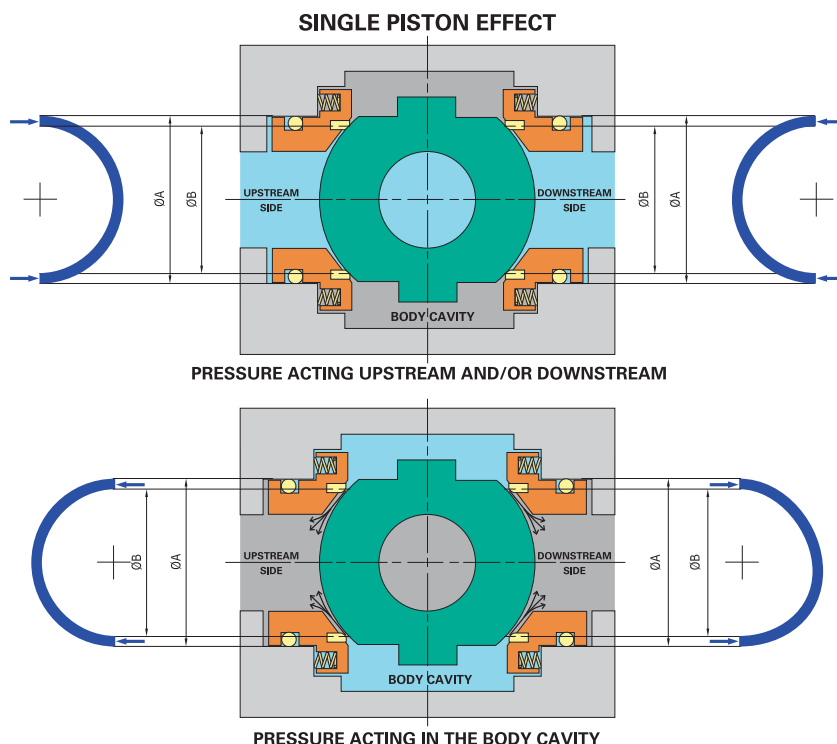
STANDARD *Single piston effect* *(self-relieving seats)*

Fluid pressure, both upstream and downstream, creates a resultant thrust that pushes the seat rings against the ball.

Fluid pressure acting in the body cavity creates a resultant thrust that pushes the seat rings away from the ball.

The single piston design permits the automatic release of any overpressure in the body cavity when the valve is in the fully open or fully closed position.

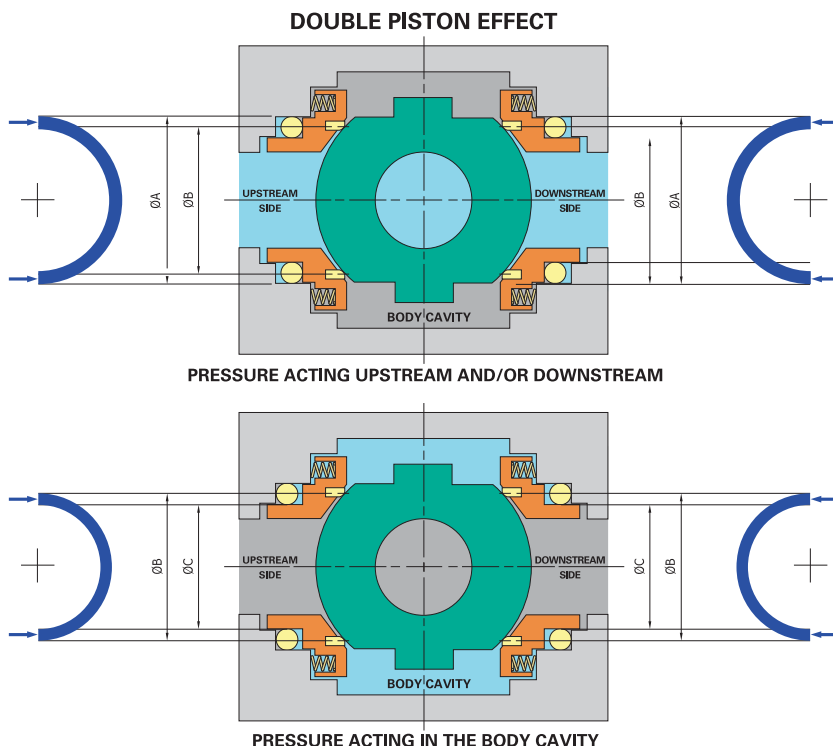
Consequently, the seat rings are "self-relieving."



OPTIONAL *Double piston effect*

Fluid pressure, both upstream and downstream as well as in the body cavity, creates a resultant thrust that pushes the seat rings towards the ball.

Valves with double piston effect seat rings require a relief valve to reduce the build-up of overpressure in the body cavity.





Fire safe

Valbart trunnion-mounted ball valves are designed and certified Fire Safe to API 6FA, API 607, and ISO 10497.

Extended stem

Valves installed underground or in remote locations can be operated with an optional extended stem.

All the drain, vent, and emergency sealant connections can be operated using extended connecting pipes firmly attached to the stem protective cover.

Ends

Valve ends can be manufactured to several configurations to comply with customer requests, such as:

Flanged RF or RTJ to ASME B16.5 up to 24" (MSS SP-44 for 22") and B16.47A for 26" and larger. Other type of flanges are available upon request.

Butt-weld ends to ASME B16.25. Others types of weld ends are available upon request.

Hub ends for clamped connections are available as per customer specification.

Actuation

Hand-operated valves are supplied either with a lever or gear operator.

The use of a wrench is limited to valves equal to or smaller than:

- 4" – Class 150
- 4" – Class 300
- 3" – Class 600
- 3" – Class 900
- 2" – Class 1500
- 1" – Class 2500

Actuated valves can be supplied with:

- Electric actuators

- Pneumatic actuators
- Hydraulic actuators
- Gas over oil actuators for ESDV, SDV, BDV, MOV, GOV, and HIPPS services

Mounting operators valve automation center

Operator mounting should be made at the Valbart Valve Automation Center before shipment.

If the operators will be assembled on site, the mounting will be carried out before installing the valves in line, following Valbart instructions.

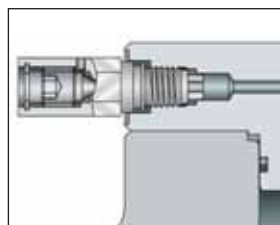
Mounting of operators on valves already installed in line is not recommended and will be performed only under the supervision of Valbart.

Operator mounting flanges are in accordance with ISO 5211-FF.

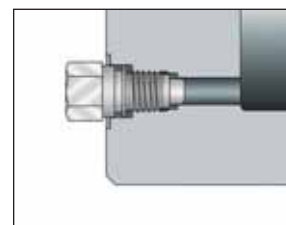
Vent valve and drain plug

Each valve 6" and larger is supplied complete with a 1/2" NPT vent valve located in the upper part of the body and complete with a drain plug located in the lower part of the body.

Each valve 6 x 4" and smaller is supplied complete with a 1/2" NPT vent/drain valve located in the lower part of the body.

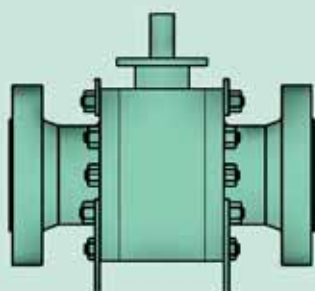


1/2" NPT vent valve bleeder

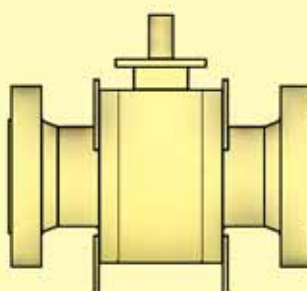


1/2" NPT vent/drain plug

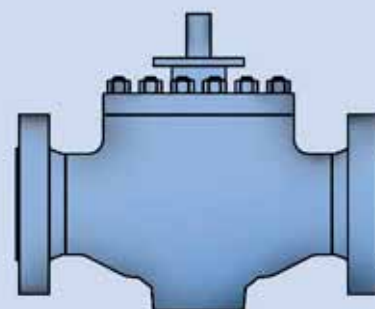
VB2/VB3



VW1

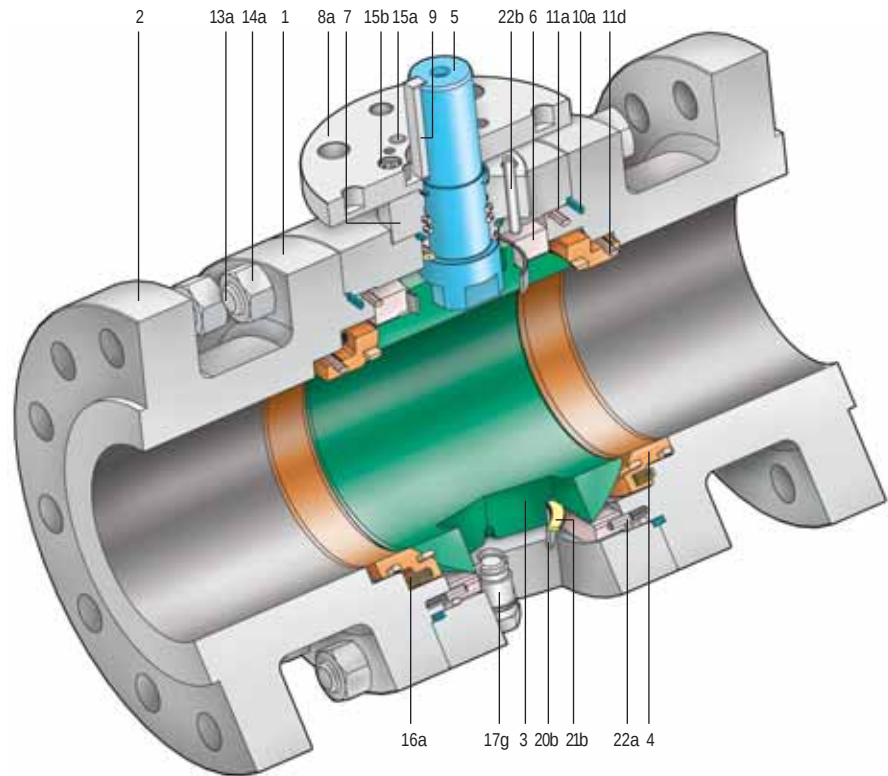


VT1



FEATURES	SIDE-ENTRY	WELDED BODY	TOP-ENTRY
Trunnion-mounted	Standard	Standard	Standard
Independent stem and ball	Standard	Standard	Standard
Independent floating seats	Standard	Standard	Standard
Primary soft seat - secondary metal seat	Standard	Standard	Standard
Primary metal seat - secondary soft seat	On request	On request	On request
Metal-to-metal seat	On request	N/A	On request
Self relieving seats	Standard	Standard	Standard
Single piston seat effect	Standard	Standard	Standard
Double piston seat effect	On request	On request	On request
Combination (self relieving/double piston) seats	On request	On request	On request
API 6a or API 6d design and construction	As required	As required	As required
Face-to-face dimensions to API 6d and ANSI B16.10	Standard	Standard	Standard
Fire safe design to API 6fa - API 607 - BS 6755 part 2	Standard	Standard	Standard
Full, reduced or venturi port	As required	As required	As required
Flanged ends - welded ends - hub ends	As required	As required	As required
Transition pups for welded end valves	On request	On request	On request
Antistatic	Standard	Standard	Standard
Anti-blowout stem	Standard	Standard	Standard
Double block and bleed	As required	As required	As required
Possibility to check seat integrity in line with ball in open or closed position	Standard	Standard	Standard
Double body seals	Standard	Not required	Standard
Triple stem seals	Standard	Standard	Standard
Drain plug	Standard	Standard	Standard
Drain valve	On request	On request	On request
Vent valve (on 6" and larger)	Standard	Standard	Standard
Emergency sealant injection on stem	Standard	Standard	Standard
Emergency sealant injection on seats (on 6" and larger)	On request	On request	On request
Seat pocket overlay	On request	On request	On request
Seals area overlay	On request	On request	On request
Wetted parts overlay	On request	On request	On request
Body internal lining	On request	N/A	On request
Extended stem for underground installation	As required	As required	As required
Extended bonnet for low or high temperature	As required	N/A	As required
Locking device	On request	On Request	On request
Lifting lugs	Standard On 6" and larger	Standard On 6" and larger	Standard On 6" and larger
Supporting feet	Standard On 6" and larger	Standard On 6" and larger	Standard On 6" and larger
Manual or motorized operation	As required	As required	As required
In-line maintenance	N/A	N/A	Yes
On site maintenance	Yes	N/A On stem & ancillaries only	Yes

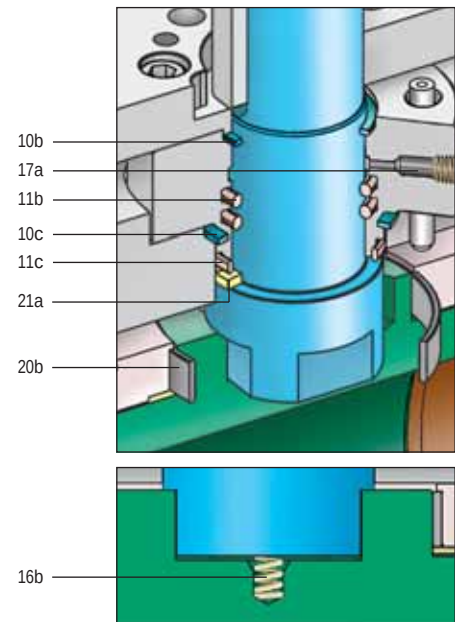
Note: Other features are available on request.

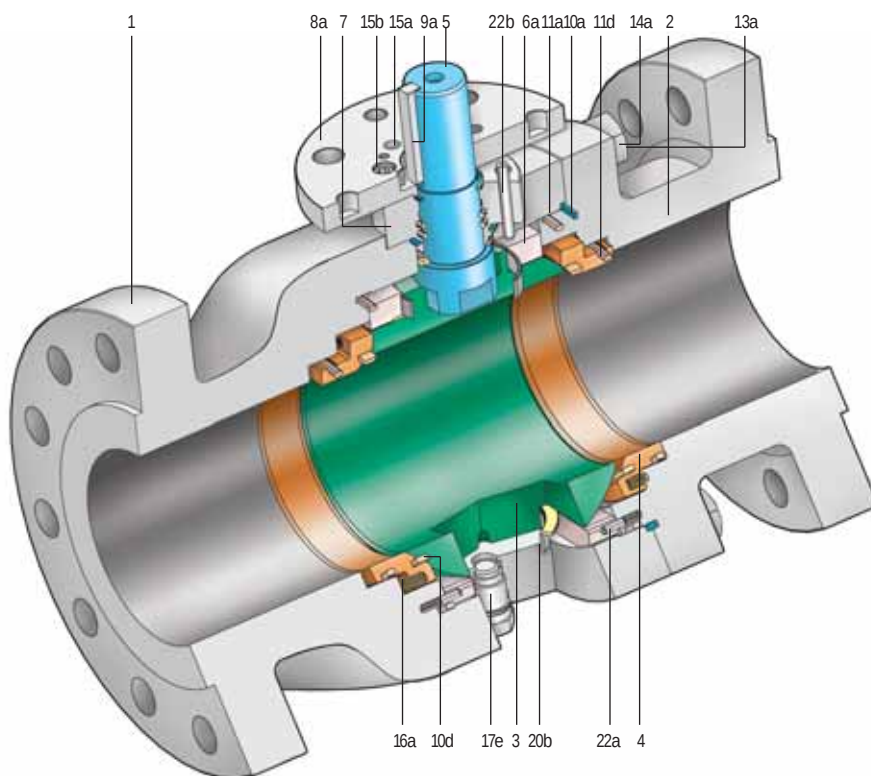


Bolted body side-entry 6" and larger - Mod VB3

PARTS LIST			
1	Body	14a	Body/closure nut
2	Closure	15a	Stem cover/body socket screw ⁽²⁾
3	Ball	15b	Operator flange/body socket screw
4	Seat	15d	Stop seat socket screw ⁽¹⁾⁽²⁾
5	Stem	16a	Seat spring
6	Bearing retainer	16b	Antistatic spring
7	Stem cover	17a	Stem greaser
8a	Operator flange	17e	Vent bleeder valve ⁽²⁾
9a	Stem key	17g	Drain plug
10a	Body gasket	20b	Ball bushing
10b	Stem gasket	21a	Stem thrust washer
10c	Stem cover gasket	21b	Ball thrust washer
11a	Body O-ring	22a	Bearing retainer pin
11b	Stem O-ring	22b	Operator flange/body pin
11c	Stem cover O-ring	23a	Lifting lug ⁽²⁾
11d	Seat O-ring	23b	Valve support ⁽²⁾
13a	Body/closure stud	24a	Stop seat washer ⁽¹⁾⁽²⁾

(1) Only for DN > 8" (2) Not visible in drawing opposite.

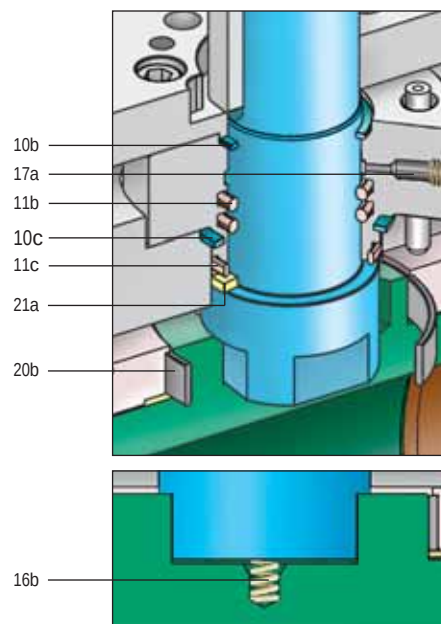


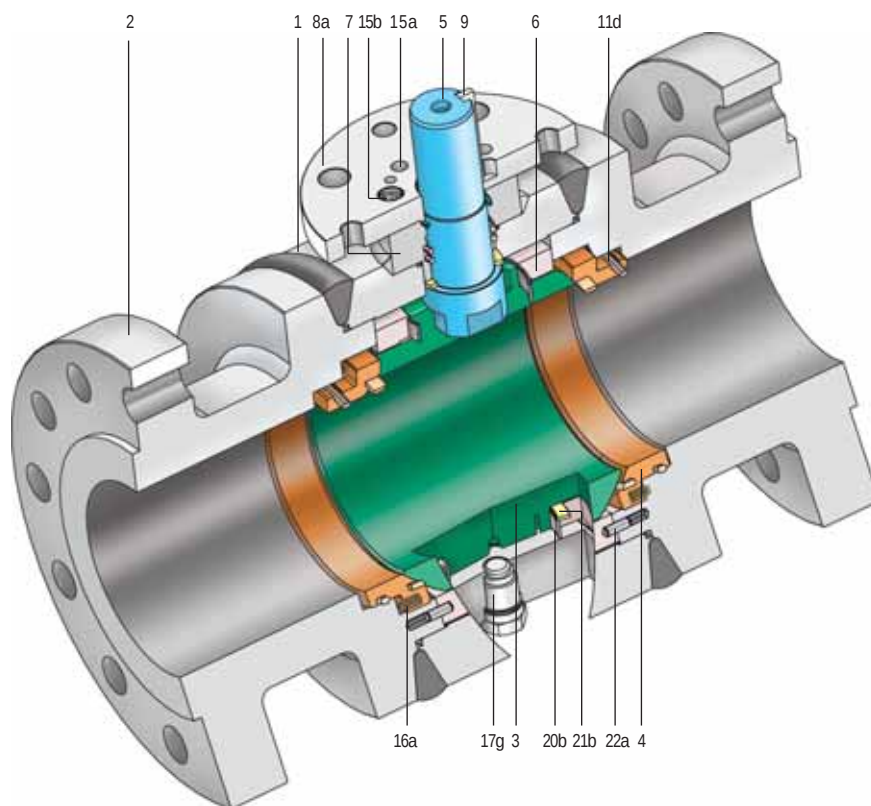


Bolted body side-entry 4" and smaller - Mod VB2

PARTS LIST			
1	Body	11c	Stem cover O-ring
2	Closure	11d	Seat O-ring
3	Ball	13a	Body/closure stud(1)
4	Seat	14a	Body/closure nut
5	Stem	15a	Stem cover/body socket screw(1)
6a	Trunnion	15b	Operator flange/body socket screw
7	Stem cover	16a	Seat spring
8a	Operator flange	16b	Antistatic spring
9a	Stem key	17a	Stem greaser
10a	Body gasket	17e	Vent bleeder valve
10b	Stem gasket	20b	Ball bushing
10d	Seat gasket	21a	Stem thrust washer
11a	Body O-ring	22a	Bearing retainer pin
11b	Stem O-ring	22b	Operator flange/body pin

(1) Not visible in drawing opposite.

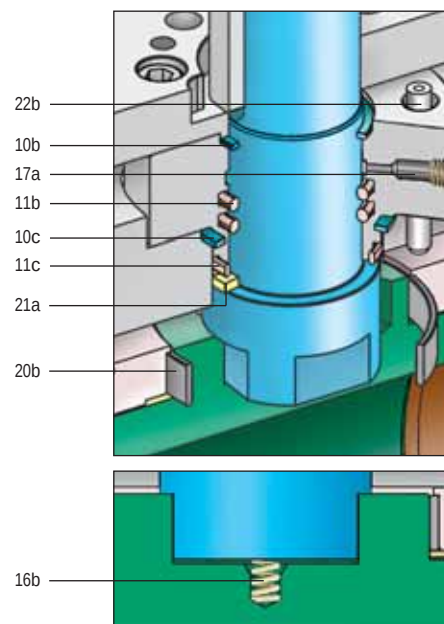


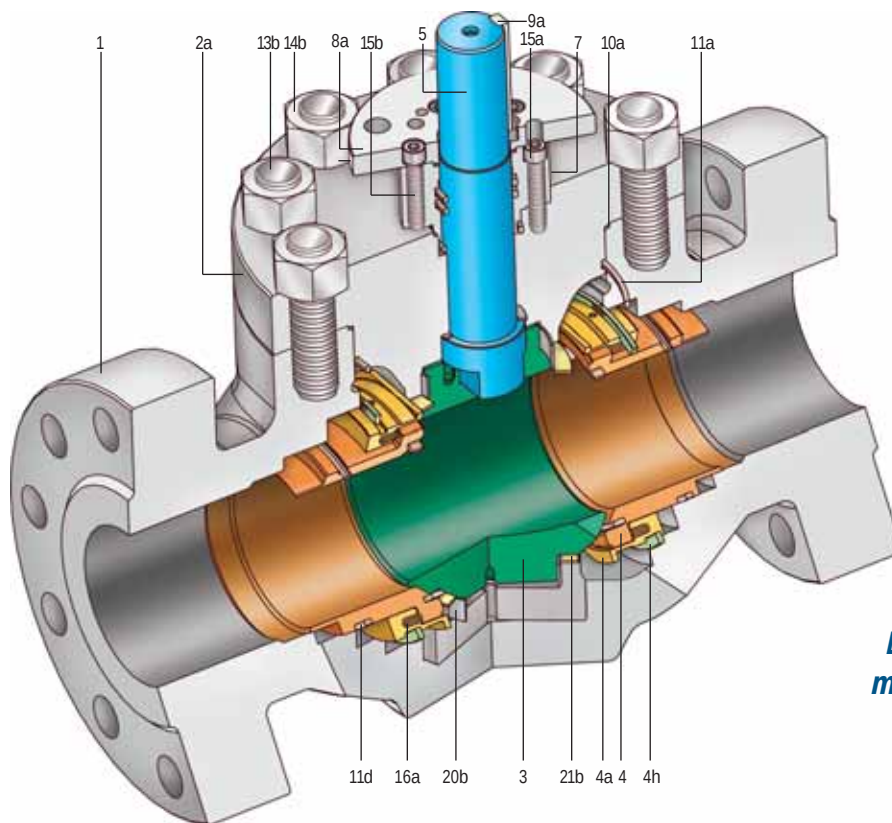


Welded body - Mod VW1

PARTS LIST			
1	Body	15b	Operator flange/body socket screw
2	Closure	15d	Stop seat socket screw ⁽¹⁾⁽²⁾
3	Ball	16a	Seat spring
4	Seat	16b	Antistatic spring
5	Stem	17a	Stem greaser
6	Bearing retainer	17e	Vent bleeder valve
7	Stem cover	17g	Drain plug
8a	Operator flange	20b	Ball bushing
9a	Stem key	21a	Stem thrust washer
10b	Stem gasket	21b	Ball thrust washer
10c	Stem cover gasket	22a	Bearing retainer pin
11b	Stem O-ring	22b	Operator flange/body pin
11c	Stem cover O-ring	23a	Lifting lug ⁽²⁾
11d	Seat O-ring	23b	Valve support ⁽²⁾
15a	Stem cover/body socket screw ⁽²⁾	24a	Stop seat washer ⁽¹⁾⁽²⁾

(1) Only for DN > 8" (2) Not visible in drawing opposite.

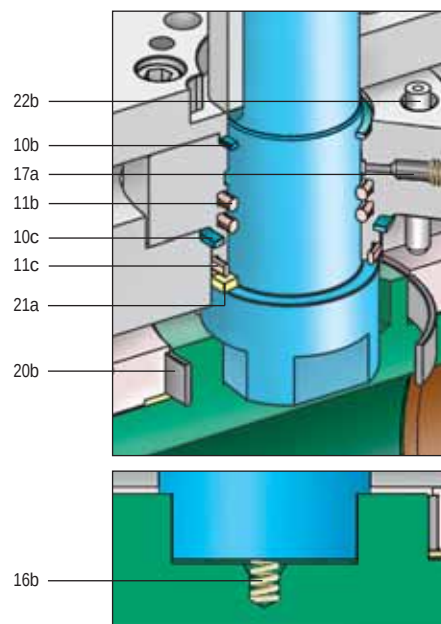




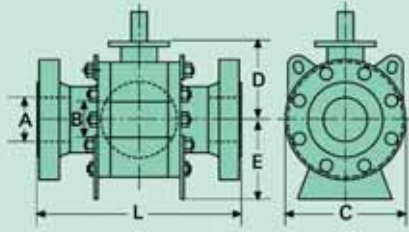
Top-entry - Mod VT1

PARTS LIST			
1	Body	11c	Stem cover O-ring
2a	Bonnet	11d	Seat O-ring
3	Ball	13b	Body/bonnet stud
4	Seat	14b	Body/bonnet nut
4a	Spring holder ring	15a	Stem cover/body socket screw
4h	Retaining ring	15b	Operator flange/body socket screw
5	Stem	16a	Seat spring
7	Stem cover	16b	Antistatic spring
8a	Operator flange	17a	Stem greaser
9a	Stem key	17e	Vent bleeder valve ⁽¹⁾
10a	Body gasket	17g	Drain plug ⁽¹⁾
10b	Stem gasket	20b	Ball bushing
10c	Stem cover gasket	21a	Stem thrust washer
11a	Body O-ring	21b	Ball thrust washer
11b	Stem O-ring	22b	Operator flange/body pin

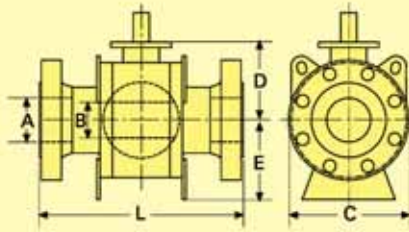
(1) Not visible in drawing opposite.



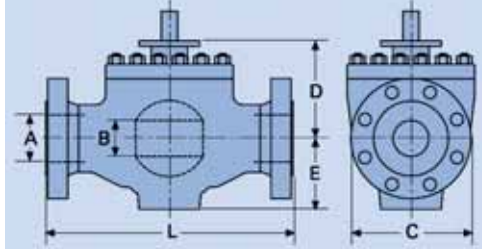
VB2/VB3



VW1



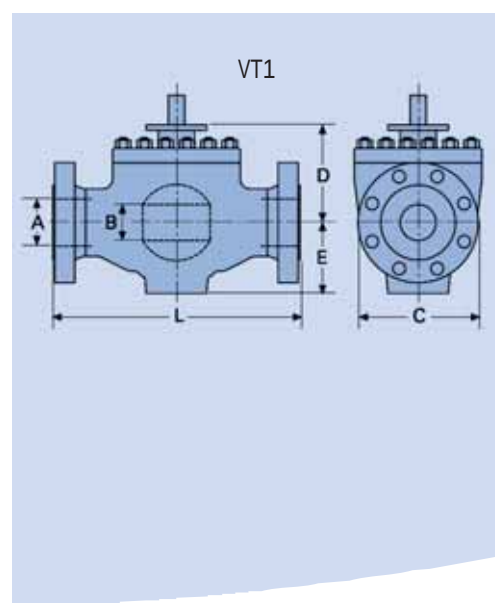
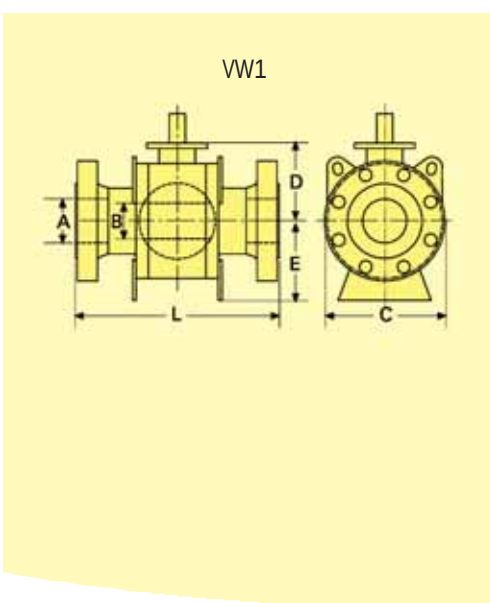
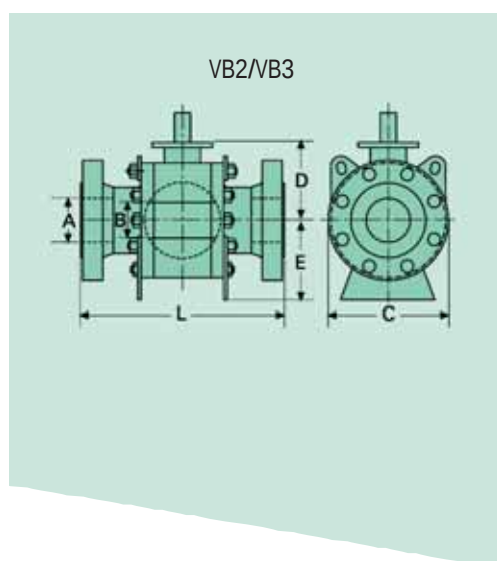
VT1



Dimensions and weights

ASME CLASS 150 FULL BORE

ALL TYPES			SIDE-ENTRY							WELDED BODY							TOP-ENTRY				
SIZE in/mm	A	B	L-RF	L-WE	C	D	E	WEIGHT lb/kg*	L-RF	L-WE	C	D	E	WEIGHT lb/kg*	L-RF	L-WE	C	D	E	WEIGHT lb/kg*	
2 50	1.93 49	1.93 49	7.00 178	8.50 216	6.02 153	4.17 106	4.02 102	59 27	7 178	8.5 216	6.02 153	4.17 106	4.02 102	(1)	11.5 292	11.5 292	7.09 180	8.15 207	3.35 85	66 30	
3 80	2.91 74	2.91 74	8.00 203	11.13 283	7.52 191	6.18 157	4.96 126	119 54	8 203	11.13 283	7.52 191	6.18 157	4.96 126	(1)	14 356	14 356	9.06 230	8.78 223	4.49 114	125.4 57	
4 100	3.94 100	3.94 100	9 229	12 305	9.13 232	7.80 198	6.42 163	196 89	9 229	12 305	9.13 232	7.80 198	6.42 163	(1)	17 432	17 432	11.10 282	11.02 280	5.51 140	220 100	
6 150	5.91 150	5.91 150	15.5 394	18 457	12.09 307	9.72 247	7.36 187	352 160	15.5 394	18 457	12.09 307	9.72 247	7.36 187	(1)	22 559	22 559	12.72 323	10.83 275	8.62 219	473 215	
8 200	7.91 201	7.91 201	18 457	20.5 521	15.43 392	11.02 280	8.82 224	557 253	18 457	20.5 521	15.43 392	11.02 280	8.82 224	(1)	26 660	26 660	15.94 405	12.64 321	10.43 265	895.4 407	
10 250	9.92 252	9.92 252	21 533	22 559	18.31 465	12.60 320	10.94 278	851 387	21 533	22 559	18.31 465	12.60 320	10.94 278	(1)	31 787	31 787	19.29 490	13.98 355	12.40 315	1232 560	
12 300	11.93 303	11.93 303	24 610	25 635	21.38 543	13.27 337	12.05 306	1230 559	24 610	25 635	21.38 543	13.27 337	12.05 306	(1)	33 838	33 838	22.24 565	18.50 470	15.94 405	1562 710	
14 350	13.15 334	13.15 334	27 686	30 762	23.94 608	14.72 374	13.15 334	1672 760	27 686	30 762	23.94 608	14.72 374	13.15 334	(1)	35 889	35 889	25.98 660	17.91 455	17.01 432	1672 760	
16 400	15.16 385	15.16 385	30 762	33 838	26.57 675	16.06 408	14.09 358	2244 1020	30 762	33 838	26.57 675	16.06 408	14.09 358	(1)	39 991	39 991	27.56 700	18.11 460	17.76 451	2420 1100	
18 450	17.17 436	17.17 436	34 864	36 914	25.00 635	17.28 439	15.35 390	2673 1215	34 864	36 914	25.00 635	17.28 439	15.35 390	(1)	43 1092	43 1092	29.41 747	19.80 503	18.58 472	3326.4 1512	
20 500	19.17 487	19.17 487	36 914	39 991	33.43 849	19.37 492	17.09 434	3945 1793	36 914	39 991	33.43 849	19.37 492	17.09 434	(1)	47 1194	47 1194	33.43 849	22.05 560	22.05 560	4246 1930	
22 550	21.18 538	21.18 538	40 991	43 1092	36.81 935	20.79 528	18.78 477	5190 2359	40 991	43 1092	36.81 935	20.79 528	18.78 477	(1)	51 1296	51 1296	36.81 935	22.24 565	23.27 591	6050 2750	
24 600	23.19 589	23.19 589	42 1067	45 1143	39.57 1005	23.15 588	20.59 523	6818 3099	42 1067	45 1143	39.57 1005	23.15 588	20.59 523	(1)	55 1397	55 1397	39.57 1005	24.02 610	23.62 600	7040 3200	
26 650	24.92 633	24.92 633	45 1143	49 1245	41.97 1066	24.69 627	22.20 564	8107 3685	45 1143	49 1245	41.97 1066	24.69 627	22.20 564	(1)	57 1448	57 1448	41.97 1066	26.38 670	24.88 632	8360 3800	
28 700	26.93 684	26.93 684	49 1244	53 1347	44.72 1136	25.35 644	25.91 658	9878 4490	49 1244	53 1347	44.72 1136	25.35 644	25.91 658	(1)	61 1549	61 1549	44.72 1136	28.74 730	27.95 710	10120 4600	
30 750	28.94 735	28.94 735	51 1295	55 1397	38.78 985	27.20 691	27.72 704	11473 5215	51 1295	55 1397	38.78 985	27.20 691	27.72 704	(1)	65 1651	65 1651	49.57 1259	31.50 800	31.10 790	12386 5630	
32 800	30.67 779	30.67 779	54 1371	60 1524	51.18 1300	29.21 742	29.37 746	14960 6800	54 1371	60 1524	51.18 1300	29.21 742	29.37 746	(1)	70 1778	70 1778	51.18 1300	33.31 846	32.68 830	15587 7085	
34 850	32.68 830	32.68 830	58 1473	64 1626	53.94 1370	29.88 759	30.43 773	17160 7800	58 1473	64 1626	53.94 1370	29.88 759	30.43 773	(1)	76 1930	76 1930	55.12 1400	34.25 870	34.65 880	17160 7800	
36 900	34.41 874	34.41 874	60 1524	68 1728	56.30 1430	31.97 812	31.77 807	19360 8800	60 1524	68 1728	56.30 1430	31.97 812	31.77 807	(1)	82 2083	82 2083	56.61 1438	36.81 935	36.73 933	20020 9100	
40 1000	38.43 976	38.43 976	69 1753	77 1956	62.80 1595	35.43 900	35.35 898	27632 12560	69 1753	77 1956	62.80 1595	35.43 900	35.35 898	(1)	92 2337	92 2337	64.96 1650	39.84 1012	40.55 1030	28138 12790	
42 1050	40.16 1020	40.16 1020	70.47 1790	82 2083	64.96 1650	37.13 943	36.89 937	31416 14280	70.47 1790	82 2083	64.96 1650	37.13 943	36.89 937	(1)	96 2437	96 2437	66.93 1700	42.13 1070	41.93 1065	33220 15100	
48 1200	45.91 1166	45.91 1166	78.54 1995	94 2388	75.59 1920	43.19 1097	41.97 1066	48180 21900	78.54 1995	94 2388	75.59 1920	43.19 1097	41.97 1066	(1)	100 2540	100 2540	76.77 1950	46.85 1190	48.43 1230	49720 22600	
56 1400	53.54 1360	53.54 1360	97.99 2489	97.99 2489	88.98 2260	51.26 1302	49.33 1253	70520 34100	97.99 2489	97.99 2489	88.98 2260	51.26 1302	49.33 1253	(1)	TBA TBA	TBA TBA	TBA TBA	TBA TBA	TBA TBA	TBA TBA	



ASME CLASS 150 REDUCED BORE

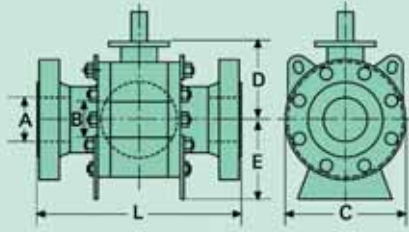
ALL TYPES			SIDE-ENTRY							WELDED BODY							TOP-ENTRY					
SIZE in/mm	A	B	L-RF	L-WE	C	D	E	WEIGHT lb/kg*	L-RF	L-WE	C	D	E	WEIGHT lb/kg*	L-RF	L-WE	C	D	E	WEIGHT lb/kg*		
2 x 1½ 50 x 40	1.93 49	1.50 38	7 178	8.5 216	5.98 152	3.70 94	3.86 98	55 25	7 178	8.5 216	5.98 152	3.70 94	3.86 98	(1)	11.50 292	11.50 292	6.89 175	8.15 207	3.35 85	55 25		
3 x 2 80 x 50	2.91 74	1.93 49	11.13 203	3.03 283	7.52 191	4.17 106	3.94 100	66 30	11.13 203	3.03 283	7.52 191	4.17 106	3.94 100	(1)	14.02 356	14.02 356	7.52 191	8.27 210	3.43 87	74.8 34		
4 x 3 100 x 80	3.94 100	2.91 74	12 229	4.02 305	9.02 229	6.06 154	5.00 127	132 60	12 229	4.02 305	9.02 229	6.06 154	5.00 127	(1)	17.01 432	17.01 432	9.06 230	8.86 225	4.33 110	154 70		
6 x 4 150 x 100	5.91 150	3.94 100	15.5 394	18 457	10.98 279	7.80 198	6.42 163	220 100	15.5 394	18 457	10.98 279	7.80 198	6.42 163	(1)	22.01 559	22.01 559	10.98 279	10.63 270	5.63 143	286 130		
8 x 6 200 x 150	7.91 201	5.91 150	18 457	20.5 521	13.50 343	9.92 252	7.36 187	407 185	18 457	20.5 521	13.50 343	9.92 252	7.36 187	(1)	25.98 660	25.98 660	13.50 343	10.83 275	8.46 215	550 250		
10 x 8 250 x 200	9.92 252	7.91 201	21 533	22 559	15.98 406	11.02 280	8.74 222	640 291	21 533	22 559	15.98 406	11.02 280	8.74 222	(1)	30.98 787	30.98 787	15.98 406	12.60 320	10.31 262	1001 455		
12 x 10 300 x 250	11.93 303	9.92 252	24 610	25 635	19.02 483	12.72 323	11.02 280	1016 462	24 610	25 635	19.02 483	12.72 323	11.02 280	(1)	32.99 838	32.99 838	19.09 485	13.98 355	12.20 310	1067 485		
14 x 10 350 x 250	13.15 334	9.92 252	27 686	30 762	21.06 535	12.76 324	10.83 275	1140 518	27 686	30 762	21.06 535	12.76 324	10.83 275	(1)	35.00 889	35.00 889	21.06 535	13.98 355	12.20 310	1463 665		
14 x 12 350 x 300	13.15 334	11.93 303	27 686	30 762	21.06 535	13.46 342	11.81 300	1342 610	27 686	30 762	21.06 535	13.46 342	11.81 300	(1)	35.00 889	35.00 889	21.06 535	18.70 475	15.55 395	1738 790		
16 x 12 400 x 300	15.16 385	11.93 303	30 762	33 838	23.43 595	13.62 346	11.93 303	1536 698	30 762	33 838	23.43 595	13.62 346	11.93 303	(1)	39.02 991	39.02 991	23.43 595	18.70 475	15.55 395	2068 940		
16 x 14 400 x 350	15.16 385	13.15 334	30 762	33 838	23.43 595	14.57 370	13.19 335	1804 820	30 762	33 838	23.43 595	14.57 370	13.19 335	(1)	39.02 991	39.02 991	25.98 660	17.72 450	16.93 430	1997.6 908		
18 x 16 450 x 400	17.17 436	15.16 385	34 864	36 914	25.00 635	16.34 415	13.70 348	2332 1060	34 864	36 914	25.00 635	16.34 415	13.70 348	(1)	42.99 1092	42.99 1092	27.56 700	18.11 460	17.72 450	2745.6 1248		
20 x 16 500 x 400	19.17 487	15.16 385	36 914	39 991	27.56 700	16.34 415	13.78 350	2420 1100	36 991	39 991	27.56 700	16.34 415	13.78 350	(1)	47.01 1194	47.01 1194	27.56 700	18.11 460	17.72 450	3392.4 1542		
20 x 18 500 x 450	19.17 487	17.17 436	36 914	39 991	27.56 700	17.28 439	15.35 390	2618 1190	36 991	39 991	27.56 700	17.28 439	15.35 390	(1)	47.01 1194	47.01 1194	29.33 745	19.49 495	18.50 470	3828 1740		
24 x 20 600 x 500	23.19 589	19.17 487	42 1067	45 1143	32.09 815	19.29 490	17.13 435	4334 1970	42 1067	45 1143	32.09 815	19.29 490	17.13 435	(1)	55.00 1397	55.00 1397	34.25 870	21.65 550	22.83 580	5231.6 2378		
30 x 24 750 x 600	28.94 735	23.19 589	51 1295	55 1397	38.78 985	23.15 588	20.28 515	7150 3250	51 1295	55 1397	38.78 985	23.15 588	20.28 515	(1)	65.00 1651	65.00 1651	40.16 1020	23.23 590	23.31 592	8817.6 4008		
36 x 30 900 x 750	34.41 874	28.94 735	60 1524	68 1728	46.06 1170	27.17 690	27.56 700	13891 6314	60 1524	68 1728	46.06 1170	27.17 690	27.56 700	(1)	82.01 2083	82.01 2083	49.21 1250	31.30 795	30.12 765	15505.6 7048		

* Weight figures are relevant to flanged end valves. - (1) Please consult the factory. - Note: For dimensions and weights in larger sizes consult the factory.

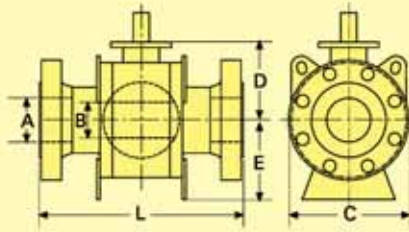
Dimensions C, D, E, and weights are subject to change without notice.

Face-to-face dimensions not listed in industry standards are subject to change without notice.

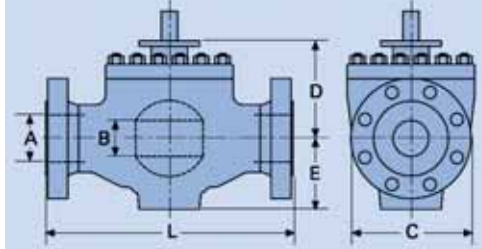
VB2/VB3



VW1



VT1

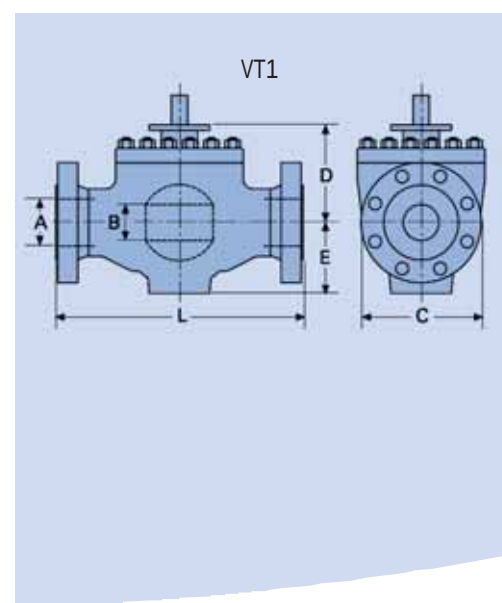
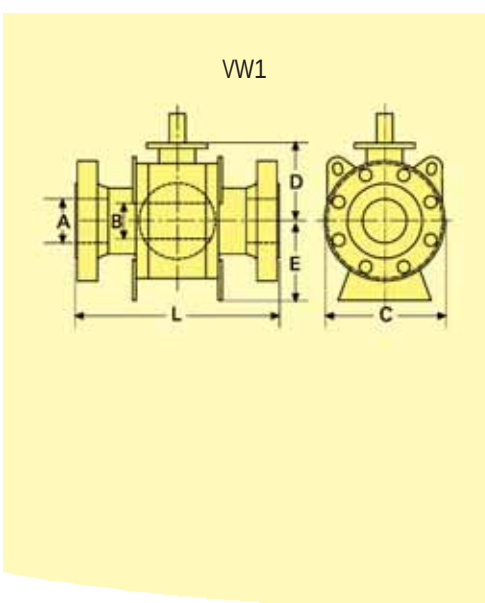
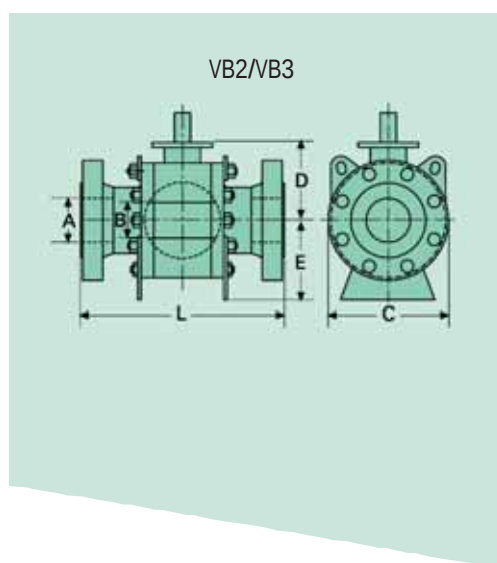


ASME CLASS 300 FULL BORE

ALL TYPES			SIDE-ENTRY						WELDED BODY						TOP-ENTRY					
SIZE in/mm	A	B	L-RF	L-WE	C	D	E	WEIGHT lb/kg*	L-RF	L-WE	C	D	E	WEIGHT lb/kg*	L-RF	L-WE	C	D	E	WEIGHT lb/kg*
2	1.93	1.93	8.5	8.5	6.5	3.9	3.7	59	8.5	8.5	6.5	3.9	3.7	(1)	11.50	11.50	7.28	8.31	3.54	79
50	49	49	216	216	165	100	95	27	216	216	165	100	95	(1)	292	292	185	211	90	36
3	2.91	2.91	11.1	11.1	8.3	5.9	4.7	121	11.1	11.1	8.3	5.9	4.7	(1)	14.02	14.02	9.25	8.90	4.69	139
80	74	74	283	283	210	150	120	55	283	283	210	150	120	(1)	356	356	235	226	119	63
4	3.94	3.94	12.0	12.0	10.0	7.9	6.3	202	12.0	12.0	10.0	7.9	6.3	(1)	17.01	17.01	11.30	11.26	5.71	233
100	100	100	305	305	254	200	160	92	305	305	254	200	160	(1)	432	432	287	286	145	106
6	5.91	5.91	15.9	18.0	12.5	9.6	7.9	400	15.9	18.0	12.5	9.6	7.9	(1)	22.01	22.01	12.99	11.10	8.82	486
150	150	150	403	457	318	245	200	182	403	457	318	245	200	(1)	559	559	330	282	224	221
8	7.91	7.91	19.8	20.5	15.2	10.8	9.1	612	19.8	20.5	15.2	10.8	9.1	(1)	25.98	25.98	16.14	12.80	10.63	906
200	201	201	502	521	385	275	230	278	502	521	385	275	230	(1)	660	660	410	325	270	412
10	9.92	9.92	22.4	22.0	18.5	13.0	11.6	1100	22.4	22.0	18.5	13.0	11.6	(1)	30.98	30.98	19.69	14.17	12.60	1245
250	252	252	568	559	470	330	295	500	568	559	470	330	295	(1)	787	787	500	360	320	566
12	11.93	11.93	25.5	25.0	21.3	14.0	13.0	1613	25.5	25.0	21.3	14.0	13.0	(1)	32.99	32.99	22.44	18.70	16.14	1573
300	303	303	648	635	540	355	330	733	648	635	540	355	330	(1)	838	838	570	475	410	715
14	13.15	13.15	30.0	30.0	24.8	15.4	13.6	2264	30.0	30.0	24.8	15.4	13.6	(1)	35.00	35.00	26.18	18.11	17.20	1685
350	334	334	762	762	630	390	345	1029	762	762	630	390	345	(1)	889	889	665	460	437	766
16	15.16	15.16	33.0	33.0	27.3	16.9	15.4	3120	33.0	33.0	27.3	16.9	15.4	(1)	39.02	39.02	27.83	18.31	17.95	2433
400	385	385	838	838	693	430	390	1418	838	838	693	430	390	(1)	991	991	707	465	456	1106
18	17.17	17.17	36.0	36.0	30.3	17.9	16.1	3502	36.0	36.0	30.3	17.9	16.1	(1)	42.99	42.99	29.61	20.00	18.78	3342
450	436	436	914	914	770	455	410	1592	914	914	770	455	410	(1)	1092	1092	752	508	477	1519
20	19.17	19.17	39.0	39.0	33.5	19.7	18.3	4829	39.0	39.0	33.5	19.7	18.3	(1)	47.01	47.01	33.66	22.24	22.24	4259
500	487	487	991	991	850	500	465	2195	991	991	850	500	465	(1)	1194	1194	855	565	565	1936
22	21.18	21.18	43.0	43.0	37.0	20.7	18.9	6134	43.0	43.0	37.0	20.7	18.9	(1)	51.02	51.02	37.09	22.52	23.46	6063
550	538	538	1092	1092	940	525	480	2788	1092	1092	940	525	480	(1)	1296	1296	942	572	596	2756
24	23.19	23.19	45.0	45.0	40.2	23.2	21.5	7612	45.0	45.0	40.2	23.2	21.5	(1)	55.00	55.00	39.76	24.29	23.82	7058
600	589	589	1143	1143	1020	590	545	3460	1143	1143	1020	590	545	(1)	1397	1397	1010	617	605	3208
26	24.92	24.92	49.0	49.0	42.5	24.8	22.8	10252	49.0	49.0	42.5	24.8	22.8	(1)	57.01	57.01	42.20	26.69	25.08	8378
650	633	633	1245	1245	1080	630	580	4660	1245	1245	1080	630	580	(1)	1448	1448	1072	678	637	3808
28	26.93	26.93	53.0	53.0	45.3	25.2	26.2	12694	53.0	53.0	45.3	25.2	26.2	(1)	60.98	60.98	44.92	29.06	28.15	10135
700	684	684	1346	1346	1150	640	665	5770	1346	1346	1150	640	665	(1)	1549	1549	1141	738	715	4607
30	28.94	28.94	55.0	55.0	48.6	27.6	28.7	14498	55.0	55.0	48.6	27.6	28.7	(1)	65.00	65.00	49.80	31.93	31.30	12404
750	735	735	1397	1397	1235	700	730	6590	1397	1397	1235	700	730	(1)	1651	1651	1265	811	795	5638
32	30.67	30.67	60.0	60.0	52.0	29.3	30.1	17450	60.0	60.0	52.0	29.3	30.1	(1)	70.00	70.00	51.65	33.46	32.87	15602
800	779	779	1524	1524	1320	745	765	7932	1524	1524	1320	745	765	(1)	1778	1778	1312	850	835	7092
34	32.68	32.68	64.0	64.0	54.7	29.9	31.5	19888	64.0	64.0	54.7	29.9	31.5	(1)	75.98	75.98	55.43	34.53	34.84	17184
850	830	830	1626	1626	1390	760	800	9040	1626	1626	1390	760	800	(1)	1930	1930	1408	877	885	7811
36	34.41	34.41	68.0	68.0	56.9	31.7	32.5	22205	68.0	68.0	56.9	31.7	32.5	(1)	82.01	82.01	56.89	37.09	36.93	20046
900	874	874	1727	1727	1445	805	825	10093	1727	1727	1445	805	825	(1)	2083	2083	1445	942	938	9112
40	38.43	38.43	77.0	77.0	63.8	35.4	36.2	30305	77.0	77.0	63.8	35.4	36.2	(1)	92.01	92.01	65.47	40.16	40.79	28156
1000	976	976	1956	1956	1620	900	920	13775	1956	1956	1620	900	920	(1)	2337	2337	1663	1020	1036	12798
42	40.16	40.16	82.0	82.0	66.3	38.1	37.4	35431	82.0	82.0	66.3	38.1	37.4	(1)	95.94	95.94	67.52	42.56	42.13	33249
1050	1020	1020	2083	2083	1685	968	950	16105	2083	2083	1685	968	950	(1)	2437	2437	1715	1081	1070	15113
48	45.91	45.91	85.4	85.4	57.5	43.3	43.3	52932	85.4	85.4	57.5	43.3	43.3	(1)	100.00	100.00	77.36	47.28	48.66	49751
1200	1166	1166	2170	2170	1460	1100	1100	24060	2170	2170	1460	1100	1100	(1)	2540	2540	1965	1201	1236	22614
56	53.54	53.54	108.0	108.0	89.6	50.6	50.0	83941	108.0	108.0	89.6	50.6	50.0	(1)	(1)	(1)	(1)	(1)	(1)	(1)
1400	1360	1360	2743	2743	2275	1285	1270	38155	2743	2743	2275	1285	1270	(1)	(1)	(1)	(1)	(1)	(1)	(1)

* Weight figures are relevant to flanged end valves. - (1) Please consult the factory. - Note: For dimensions and weights in larger sizes consult the factory.
Dimensions C, D, E, and weights are subject to change without notice.

Face-to-face dimensions not listed in industry standards are subject to change without notice.



ASME CLASS 300 REDUCED BORE

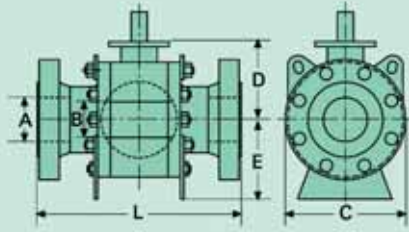
ALL TYPES			SIDE-ENTRY						WELDED BODY						TOP-ENTRY					
SIZE in/mm	A	B	L-RF	L-WE	C	D	E	WEIGHT lb/kg*	L-RF	L-WE	C	D	E	WEIGHT lb/kg*	L-RF	L-WE	C	D	E	WEIGHT lb/kg*
2 x 1½ 50 x 40	1.93 49	1.50 38	8.5 216	8.5 216	6.5 165	3.7 94	3.9 100	55 25	8.5 216	8.5 216	6.5 165	3.7 94	3.9 100	(1)	11.5 292	11.5 292	7.0 178	8.1 206	3.1 80	57.2 26
3 x 2 80 x 50	2.91 74	1.93 49	11.1 283	11.1 283	8.3 210	3.9 100	3.7 95	70.4 32	11.1 283	11.1 283	8.3 210	3.9 100	3.7 95	(1)	14.0 356	14.0 356	8.3 210	8.3 211	3.5 90	92.4 42
4 x 3 100 x 80	3.94 100	2.91 74	12.0 305	12.0 305	10.0 254	5.9 150	4.7 120	136.4 62	12.0 305	12.0 305	10.0 254	5.9 150	4.7 120	(1)	17.0 432	17.0 432	10.0 254	8.9 226	4.7 119	180.4 82
6 x 4 150 x 100	5.91 150	3.94 100	15.9 403	18.0 457	12.5 318	7.9 200	6.3 160	253 115	15.9 403	18.0 457	12.5 318	7.9 200	6.3 160	(1)	22.0 559	22.0 559	12.5 318	11.3 286	5.7 145	354.2 161
8 x 6 200 x 150	7.91 201	5.91 150	19.8 502	20.5 521	15.0 381	9.6 245	7.9 200	481.8 219	19.8 502	20.5 521	15.0 381	9.6 245	7.9 200	(1)	26.0 660	26.0 660	15.0 381	11.1 282	8.8 224	627 285
10 x 8 250 x 200	9.92 252	7.91 201	22.4 568	22.0 559	17.5 445	10.8 275	9.1 230	642.4 292	22.4 568	22.0 559	17.5 445	10.8 275	9.1 230	(1)	31.0 787	31.0 787	17.5 445	12.8 325	10.6 270	1179.2 536
12 x 10 300 x 250	11.93 303	9.92 252	25.5 648	25.0 635	20.5 520	13.0 330	11.6 295	1306.8 594	25.5 648	25.0 635	20.5 520	13.0 330	11.6 295	(1)	33.0 838	33.0 838	20.5 520	14.2 360	12.6 320	1258.4 572
14 x 10 350 x 250	13.15 334	9.92 252	30.0 762	30.0 762	23.0 585	13.0 330	11.6 295	1414.6 643	30.0 762	30.0 762	23.0 585	13.0 330	11.6 295	(1)	35.0 889	35.0 889	20.5 520	14.2 360	12.6 320	1718.2 781
14 x 12 350 x 300	13.15 334	11.93 303	30.0 762	30.0 762	23.0 585	14.0 355	13.0 330	1795.2 816	30.0 762	30.0 762	23.0 585	14.0 355	13.0 330	(1)	35.0 889	35.0 889	23.0 585	18.7 475	16.1 410	2015.2 916
16 x 12 400 x 300	15.16 385	11.93 303	33.0 838	33.0 838	25.6 650	14.0 355	13.0 330	2123 965	33.0 838	33.0 838	25.6 650	14.0 355	13.0 330	(1)	39.0 991	39.0 991	25.6 650	18.7 475	16.1 410	2402.4 1092
16 x 14 400 x 350	15.16 385	13.15 334	33.0 838	33.0 838	25.6 650	15.4 390	13.6 345	2475 1125	33.0 838	33.0 838	25.6 650	15.4 390	13.6 345	(1)	39.0 991	39.0 991	26.2 665	18.1 460	17.2 437	2409 1095
18 x 16 450 x 400	17.17 436	15.16 385	36.0 914	36.0 914	28.0 710	16.9 430	15.4 390	3504.6 1593	36.0 914	36.0 914	28.0 710	16.9 430	15.4 390	(1)	43.0 1092	43.0 1092	28.0 710	18.3 465	18.0 456	3216.4 1462
20 x 16 500 x 400	19.17 487	15.16 385	39.0 991	39.0 991	30.5 775	16.9 430	15.4 390	3658.6 1663	39.0 991	39.0 991	30.5 775	16.9 430	15.4 390	(1)	47.0 1194	47.0 1194	30.5 775	18.3 465	18.0 456	3979.8 1809
20 x 18 500 x 450	19.17 487	17.17 436	39.0 991	39.0 991	30.5 775	17.9 455	16.1 410	3942.4 1792	39.0 991	39.0 991	30.5 775	17.9 455	16.1 410	(1)	47.0 1194	47.0 1194	30.5 775	20.0 508	18.8 477	4450.6 2023
24 x 20 600 x 500	23.19 589	19.17 487	45.0 1143	45.0 1143	36.0 915	19.7 500	18.3 465	5854.2 2661	45.0 1143	45.0 1143	36.0 915	19.7 500	18.3 465	(1)	55.0 1397	55.0 1397	36.0 915	22.2 565	22.2 565	6102.8 2774
30 x 24 750 x 600	28.94 735	23.19 589	55.0 1397	55.0 1397	42.9 1090	23.2 590	21.5 545	9864.8 4484	55.0 1397	55.0 1397	42.9 1090	23.2 590	21.5 545	(1)	65.0 1651	65.0 1651	42.9 1090	24.3 617	23.8 605	10263 4665
36 x 30 900 x 750	34.41 874	28.94 735	68.0 1727	68.0 1727	50.0 1270	27.6 700	28.7 730	18002.6 8183	68.0 1727	68.0 1727	50.0 1270	27.6 700	28.7 730	(1)	82.0 2083	82.0 2083	50.0 1270	31.9 811	31.3 795	18255.6 8298

* Weight figures are relevant to flanged end valves. - (1) Please consult the factory. - Note: For dimensions and weights in larger sizes consult the factory.

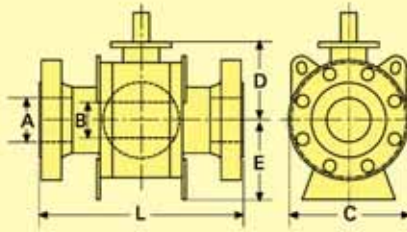
Dimensions C, D, E, and weights are subject to change without notice.

Face-to-face dimensions not listed in industry standards are subject to change without notice.

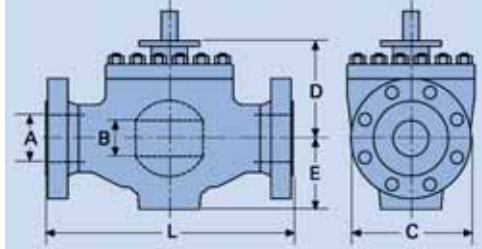
VB2/VB3



VW1



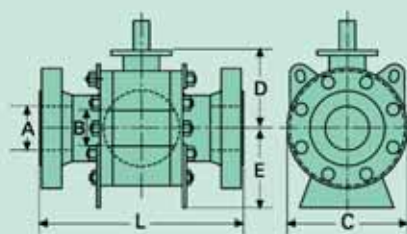
VT1



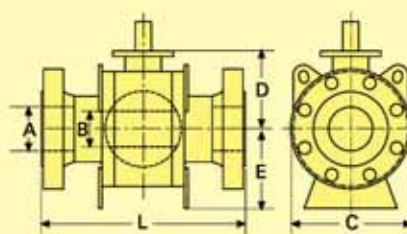
ASME CLASS 600 FULL BORE

ALL TYPES										SIDE-ENTRY										WELDED BODY										TOP-ENTRY									
SIZE in/mm	A	B	L-RF	L-RTJ	L-WE	C	D	E	WEIGHT lb/kg*	L-RF	L-RTJ	L-WE	C	D	E	WEIGHT lb/kg*	L-RF	L-RTJ	L-WE	C	D	E	WEIGHT lb/kg*	L-RF	L-RTJ	L-WE	C	D	E	WEIGHT lb/kg*	L-RF	L-RTJ	L-WE	C	D	E	WEIGHT lb/kg*		
2	1.93	1.93	11.5	11.63	11.5	6.5	4.0	3.9	68	11.5	11.63	11.5	6.5	4.0	3.9	(1)	11.50	11.63	11.50	7.48	8.46	3.74	90	11.50	11.63	11.50	7.48	8.46	3.74	90	11.50	11.63	11.50	7.48	8.46	3.74	90		
50	49	49	292	295	292	165	102	98	31	292	295	292	165	102	98	(1)	292	295	292	190	215	95	41	292	295	292	190	215	95	41	292	295	292	190	215	95	41		
3	2.91	2.91	14.0	14.13	14.0	8.3	6.5	5.0	136	14.0	14.13	14.0	8.3	6.5	5.0	(1)	14.02	14.13	14.02	9.45	9.13	4.88	147	14.02	14.13	14.02	9.45	9.13	4.88	147	14.02	14.13	14.02	9.45	9.13	4.88	147		
80	74	74	356	359	356	210	165	128	62	356	359	356	210	165	128	(1)	356	359	356	240	232	124	67	356	359	356	240	232	124	67	356	359	356	240	232	124	67		
4	3.94	3.94	17.0	17.13	17.0	10.7	8.3	6.3	249	17.0	17.13	17.0	10.7	8.3	6.3	(1)	17.01	17.13	17.01	11.42	11.57	5.91	242	17.01	17.13	17.01	11.42	11.57	5.91	242	17.01	17.13	17.01	11.42	11.57	5.91	242		
100	100	100	432	435	432	273	210	160	113	432	435	432	273	210	160	(1)	432	435	432	290	294	150	110	432	435	432	290	294	150	110	432	435	432	290	294	150	110		
6	5.91	5.91	22.0	22.13	22.0	14.0	9.8	7.9	557	22.0	22.13	22.0	14.0	9.8	7.9	(1)	22.01	22.13	22.01	13.19	13.30	5.08	497	22.01	22.13	22.01	13.19	13.30	5.08	497	22.01	22.13	22.01	13.19	13.30	5.08	497		
150	150	150	559	562	559	356	250	200	253	559	562	559	356	250	200	(1)	559	562	559	335	287	129	226	559	562	559	335	287	129	226	559	562	559	335	287	129	226		
8	7.91	7.91	26.0	26.13	26.0	16.5	11.3	10.0	1067	26.0	26.13	26.0	16.5	11.3	10.0	(1)	25.98	26.13	25.98	16.34	12.76	10.83	917	25.98	26.13	25.98	16.34	12.76	10.83	917	25.98	26.13	25.98	16.34	12.76	10.83	917		
200	201	201	660	664	660	419	288	255	485	660	664	660	419	288	255	(1)	660	664	660	415	324	275	417	660	664	660	415	324	275	417	660	664	660	415	324	275	417		
10	9.92	9.92	31.0	31.13	31.0	20.1	13.0	12.1	1668	31.0	31.13	31.0	20.1	13.0	12.1	(1)	30.98	31.13	30.98	19.88	14.37	12.80	1254	30.98	31.13	30.98	19.88	14.37	12.80	1254	30.98	31.13	30.98	19.88	14.37	12.80	1254		
250	252	252	787	791	787	510	330	308	758	787	791	787	510	330	308	(1)	787	791	787	505	365	325	570	787	791	787	505	365	325	570	787	791	787	505	365	325	570		
12	11.93	11.93	33.0	33.13	33.0	22.6	14.9	13.7	2347	33.0	33.13	33.0	22.6	14.9	13.7	(1)	32.99	33.13	32.99	22.64	18.90	16.34	1584	32.99	33.13	32.99	22.64	18.90	16.34	1584	32.99	33.13	32.99	22.64	18.90	16.34	1584		
300	303	303	838	841	838	575	378	348	1067	838	841	838	575	378	348	(1)	838	841	838	575	480	415	720	838	841	838	575	480	415	720	838	841	838	575	480	415	720		
14	13.15	13.15	35.0	35.13	35.0	24.7	15.5	14.2	2383	35.0	35.13	35.0	24.7	15.5	14.2	(1)	35.00	35.13	35.00	26.38	18.31	17.40	1694	35.00	35.13	35.00	26.38	18.31	17.40	1694	35.00	35.13	35.00	26.38	18.31	17.40	1694		
350	334	334	889	892	889	628	394	360	1083	889	892	889	628	394	360	(1)	889	892	889	670	465	442	770	889	892	889	670	465	442	770	889	892	889	670	465	442	770		
16	15.16	15.16	39.0	39.13	39.0	27.6	16.9	16.1	3355	39.0	39.13	39.0	27.6	16.9	16.1	(1)	39.02	39.13	39.02	28.03	18.50	18.15	2446	39.02	39.13	39.02	28.03	18.50	18.15	2446	39.02	39.13	39.02	28.03	18.50	18.15	2446		
400	385	385	991	994	991	700	430	410	1525	991	994	991	700	430	410	(1)	991	994	991	712	470	461	1112	991	994	991	712	470	461	1112	991	994	991	712	470	461	1112		
18	17.17	17.17	43.0	43.13	43.0	30.5	18.4	16.9	4609	43.0	43.13	43.0	30.5	18.4	16.9	(1)	42.99	43.13	42.99	29.80	20.16	18.98	3351	42.99	43.13	42.99	29.80	20.16	18.98	3351	42.99	43.13	42.99	29.80	20.16	18.98	3351		
450	436	436	1092	1095	1092	774	467	430	2095	1092	1095	1092	774	467	430	(1)	1092	1095	1092	757	512	482	1523	1092	1095	1092	757	512	482	1523	1092	1095	1092	757	512	482	1523		
20	19.17	19.17	47.0	47.25	47.0	34.1	19.7	19.4	5804	47.0	47.25	47.0	34.1	19.7	19.4	(1)	47.01	47.25	47.01	33.86	22.44	22.44	4268	47.01	47.25	47.01	33.86	22.44	22.44	4268	47.01	47.25	47.01	33.86	22.44	22.44	4268		
500	487	487	1194	1200	1194	865	500	492	2638	1194	1200	1194	865	500	492	(1)	1194	1200	1194	860	570	570	1940	1194	1200	1194	860	570	570	1940	1194	1200	1194	860	570	570	1940		
22	21.18	21.18	51.0	51.38	51.0	37.4	23.4	22.4	8331	51.0	51.38	51.0	37.4	23.4	22.4	(1)	51.02	51.38	51.02	37.28	22.76	23.70	6072	51.02	51.38	51.02	37.28	22.76	23.70	6072	51.02	51.38	51.02	37.28	22.76	23.70	6072		
550	538	538	1296	1305	1296	950	570	505	3787	1296	1305	1296	950	570	505	(1)	1296	1305	1296	947	578	602	2760	1296	1305	1296	947	578	602	2760	1296	1305	1296	947	578	602	2760		
24	23.19	23.19	55.0	55.38	55.0	40.5	23.4	22.4	10419	55.0	55.38	55.0	40.5	23.4	22.4	(1)	55.00	55.38	55.00	39.96	24.49	24.02	7069	55.00	55.38	55.00	39.96	24.49	24.02	7069	55.00	55.38	55.00	39.96	24.49	24.02	7069		
600	589	589	1397	1406	1397	1028	594	570	4736	1397	1406	1397	1028	594	570	(1)	1397	1406	1397	1015	622	610	3213	1397	1406	1397	1015	622	610	3213	1397	1406	1397	1015	622	610	3213		
26	24.92	24.92	57.0	57.50	57.0	40.0	24.8	24.3	12423	57.0	57.50	57.0	40.0	24.8	24.3	(1)	57.01	57.50	57.01	42.44	26.85	25.20	8389	57.01	57.50	57.01	42.44	26.85	25.20	8389	57.01	57.50	57.01	42.44	26.85	25.20	8389		
650	633	633	1448	1460	1448	1015	630	618	5647	1448	1460	1448	1015	630	618	(1)	1448	1460	1448	1078	682	640	3813	1448	1460	1448	1078	682	640	3813	1448	1460	1448	1078	682	640	3813		
28	26.93	26.93	61.0	61.50	61.0	46.1	26.2	27.2	14868	61.0	61.50	61.0	46.1	26.2	27.2	(1)	60.98	61.50	60.98	45.12	29.21	28.43	10146	60.98	61.50	60.98	45.12	29.21	28.43	10146	60.98	61.50	60.98	45.12	29.21	28.43	10146		
700	684	684	1549	1562	1549	1172	665	692	6758	1549	1562	1549	1172	665	692	(1)	1549	1562	1549	1146	742	722	4612	1549	1562	1549	1146	742	722	4612	1549	1562	1549	1146	742	722	4612		
30	28.94	28.94	66.3	66.50	66.3	50.8	29.2	31.5	18429	66.3	66.50	66.3	50.8	29.2	31.5	(1)	66.30	66.50	66.30	50.00	32.17	31.65	12408	66.30	66.50	66.30	50.00	32.17	31.65	12408	66.30	66.50	66.30	50.00	32.17	31.65	12408		
750	735	735	1684	1697	1684	1290	741	800	8377	1684	1697	1684	1290	741	800	(1)	1684	1697	1684	1270	817	804	5640	1684	1697	1684	1270	817	804	5640	1684	1697	1684	1270	817	804	5640		
32	30.67	30.67	70.0	70.72	70.0	52.4	29.8	31.7	21424	70.0	70.72	70.0	52.4	29.8	31.7	(1)	70.00	70.72	70.00	51.85	33.66	33.07	15627	70.00	70.72	70.00	51.85	33.66	33.07	15627	70.00	70.72	70.00	51.85	33.66	33.07	15627		
800	779	779	1778	1794	1778	1330	756	804	9738	1778	1794	1778	1330	756	804	(1)	1778																						

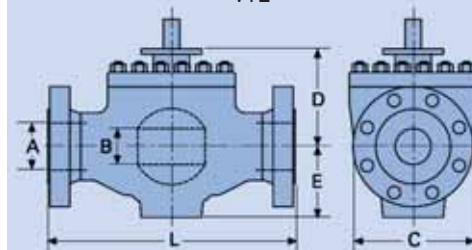
VB2/VB3



VW1



VT1



ASME CLASS 600 REDUCED BORE

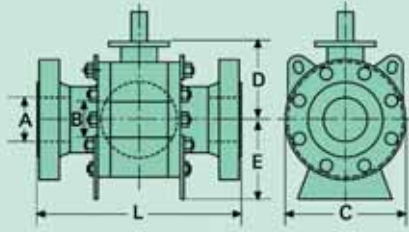
ALL TYPES			SIDE-ENTRY								WELDED BODY								TOP-ENTRY							
SIZE in/mm	A	B	L-RF	L-RTJ	L-WE	C	D	E	WEIGHT lb/kg*	L-RF	L-RTJ	L-WE	C	D	E	WEIGHT lb/kg*	L-RF	L-RTJ	L-WE	C	D	E	WEIGHT lb/kg*			
2 x 1½ 50 x 40	1.93 49	1.50 38	11.5 292	11.63 295	11.5 292	6.5 165	3.7 95	4.0 102	68 31	11.5 292	11.63 295	11.5 292	6.5 165	3.7 95	4.0 102	(1)	14.5 368	11.63 295	14.5 368	7.0 178	8.3 210	3.3 85	75 34			
3 x 2 80 x 50	2.91 74	1.93 49	14.0 356	14.13 359	14.0 356	8.3 210	4.0 102	3.9 98	86 39	14.0 356	14.13 359	14.0 356	8.3 210	4.0 102	3.9 98	(1)	14.0 356	14.13 359	14.0 356	8.3 210	8.5 215	3.7 95	101 46			
4 x 3 100 x 80	3.94 100	2.91 74	17.0 432	17.13 436	17.0 432	14.7 373	6.5 165	5.0 128	172 78	17.0 432	17.13 436	17.0 432	14.7 373	6.5 165	5.0 128	(1)	17.0 432	17.13 436	17.0 432	10.7 273	9.1 232	4.9 124	207 94			
6 x 4 150 x 100	5.91 150	3.94 100	22.0 559	22.13 562	22.0 559	14.0 356	8.3 210	6.3 160	330 150	22.0 559	22.13 562	22.0 559	14.0 356	8.3 210	6.3 160	(1)	22.0 559	22.13 562	22.0 559	14.0 356	11.6 294	5.9 150	180 82			
8 x 6 200 x 150	7.91 201	5.91 150	26.0 664	26.13 660	26.0 660	16.5 419	9.8 250	7.9 200	642 292	26.0 660	26.13 664	26.0 660	16.5 419	9.8 250	7.9 200	(1)	26.0 660	26.13 664	26.0 660	16.5 419	11.3 289	5.1 129	699.6 318			
10 x 8 250 x 200	9.92 252	7.91 201	31.0 787	31.13 791	31.0 787	20.1 510	11.3 288	10.0 255	1210 550	31.0 787	31.13 791	31.0 787	20.1 510	11.3 288	10.0 255	(1)	31.0 787	31.13 791	31.0 787	20.1 510	12.8 324	10.8 275	1320 600			
12 x 10 300 x 250	11.93 303	9.92 252	33.0 838	33.13 841	33.0 838	22.0 560	13.0 330	12.1 308	1784 811	33.0 838	33.13 841	33.0 838	22.0 560	13.0 330	12.1 308	(1)	33.0 838	33.13 841	33.0 838	22.0 560	14.4 365	12.8 325	1582 719			
14 x 10 350 x 250	13.15 334	9.92 252	35.0 889	35.13 892	35.0 889	23.8 605	13.0 330	12.1 308	2006 912	35.0 889	35.13 892	35.0 889	23.8 605	13.0 330	12.1 308	(1)	35.0 889	35.13 892	35.0 889	23.8 605	14.4 365	12.8 325	2180 991			
14 x 12 350 x 300	13.15 334	11.93 303	35.0 889	35.13 892	35.0 889	23.8 605	14.9 378	13.7 348	2519 1145	35.0 889	35.13 892	35.0 889	23.8 605	14.9 378	13.7 348	(1)	35.0 889	35.13 892	35.0 889	23.8 605	18.9 480	16.3 415	2620 1191			
16 x 12 400 x 300	15.16 385	11.93 303	39.0 991	39.13 994	39.0 991	27.0 685	14.9 378	13.7 348	2966 1348	39.0 991	39.13 994	39.0 991	27.0 685	14.9 378	13.7 348	(1)	39.0 991	39.13 994	39.0 991	27.0 685	18.9 480	16.3 415	3104 1411			
16 x 14 400 x 350	15.16 385	13.15 334	35.0 889	35.13 892	35.0 889	24.7 628	15.5 394	14.2 360	2383 1083	35.0 889	35.13 892	35.0 889	24.7 628	15.5 394	14.2 360	(1)	35.0 889	35.13 892	35.0 889	24.7 628	18.3 465	17.4 442	3029 1377			
18 x 16 450 x 400	17.17 436	15.16 385	43.0 1092	43.13 1095	43.0 1092	29.3 745	16.9 430	16.1 410	3696 1680	43.0 1092	43.13 1095	43.0 1092	29.3 745	16.9 430	16.1 410	(1)	43.0 1092	43.13 1095	43.0 1092	29.3 745	18.5 470	18.1 461	4083 1856			
20 x 16 500 x 400	19.17 487	15.16 385	47.0 1194	47.25 1200	47.0 1194	32.1 815	16.9 430	16.1 410	4587 2085	47.0 1194	47.25 1200	47.0 1194	32.1 815	16.9 430	16.1 410	(1)	47.0 1194	47.25 1200	47.0 1194	32.1 815	18.5 470	18.1 461	6371 2896			
20 x 18 500 x 450	19.17 487	17.17 436	47.0 1194	47.25 1200	47.0 1194	32.1 815	18.4 467	16.9 430	5225 2375	47.0 1194	47.25 1200	47.0 1194	32.1 815	18.4 467	16.9 430	(1)	47.0 1194	47.25 1200	47.0 1194	32.1 815	20.2 512	19.0 482	5755 2616			
24 x 20 600 x 500	23.19 589	19.17 487	55.0 1397	55.38 1406	55.0 1397	37.0 940	19.7 500	19.4 492	7146 3248	55.0 1397	55.38 1406	55.0 1397	37.0 940	19.7 500	19.4 492	(1)	55.0 1397	55.38 1406	55.0 1397	37.0 940	22.4 570	22.4 570	7740 3518			
30 x 24 750 x 600	28.94 735	23.19 589	66.3 1684	66.50 1697	66.3 1684	44.5 1130	23.4 594	22.4 570	12690 5768	66.3 1684	66.50 1697	66.3 1684	44.5 1130	23.4 594	22.4 570	(1)	66.3 1684	66.50 1697	66.3 1684	44.5 1130	24.5 622	24.0 610	13130 5968			
36 x 30 900 x 750	34.41 874	28.94 735	82.0 2083	82.63 2098	82.0 2083	51.8 1315	27.9 708	29.6 751	22827 10376	82.0 2083	82.63 2098	82.0 2083	51.8 1315	27.9 708	29.6 751	(1)	82.0 2083	82.63 2098	82.0 2083	51.8 1315	32.2 817	31.7 804	23258 10572			

* Weight figures are relevant to flanged end valves. - (1) Please consult the factory. - Note: For dimensions and weights in larger sizes consult the factory.

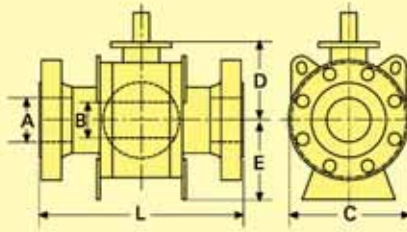
Dimensions C, D, E, and weights are subject to change without notice.

Face-to-face dimensions not listed in industry standards are subject to change without notice.

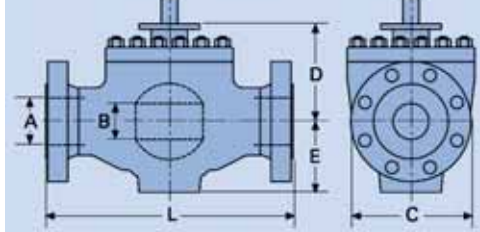
VB2/VB3



VW1

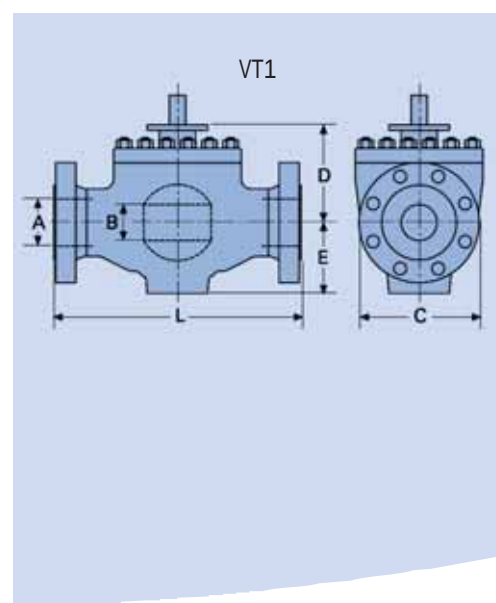
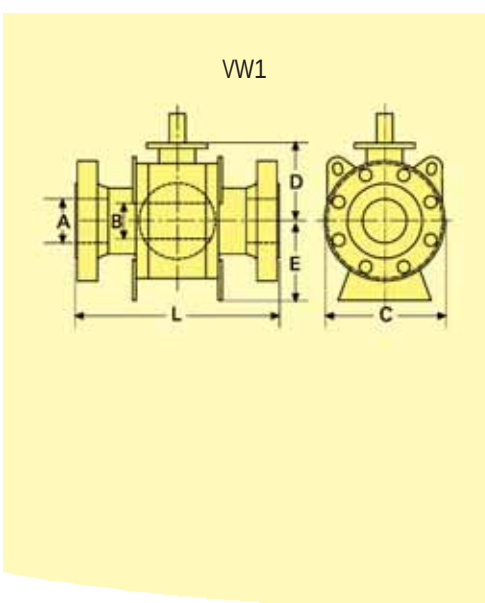
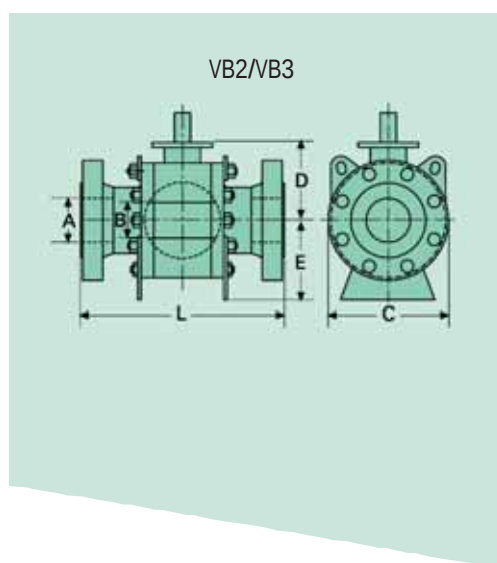


VT1



ASME CLASS 900 FULL BORE

ALL TYPES			SIDE-ENTRY								WELDED BODY								TOP-ENTRY											
SIZE in/mm	A	B	L-RF	L-RTJ	L-WE	C	D	E	WEIGHT lb/kg*	L-RF	L-RTJ	L-WE	C	D	E	WEIGHT lb/kg*	L-RF	L-RTJ	L-WE	C	D	E	WEIGHT lb/kg*							
2	1.93	1.93	14.49	14.61	14.49	8.50	4.09	4.06	106	14.49	14.61	14.49	8.50	4.09	4.06	(1)	14.49	14.61	14.49	8.50	8.35	3.35	114	14.49	14.61	14.49	8.50	8.35	3.35	114
50	49	49	368	371	368	216	104	103	48	368	371	368	216	104	103	(1)	368	371	368	216	212	85	52	368	371	368	216	212	85	52
3	2.91	2.91	15.00	15.12	15.00	9.49	6.42	5.20	121	15.00	15.12	15.00	9.49	6.42	5.20	(1)	15.00	15.12	15.00	9.49	8.94	4.45	242	15.00	15.12	15.00	9.49	8.94	4.45	242
80	74	74	381	384	381	241	163	132	55	381	384	381	241	163	132	(1)	381	384	381	241	227	113	110	381	384	381	241	227	113	110
4	3.94	3.94	17.99	18.11	17.99	11.50	8.31	6.65	319	17.99	18.11	17.99	11.50	8.31	6.65	(1)	17.99	18.11	17.99	11.50	10.91	5.67	440	17.99	18.11	17.99	11.50	10.91	5.67	440
100	100	100	457	460	457	292	211	169	145	457	460	457	292	211	169	(1)	457	460	457	292	277	144	200	457	460	457	292	277	144	200
6	5.91	5.91	24.02	24.13	24.02	15.00	10.20	8.39	792	24.02	24.13	24.02	15.00	10.20	8.39	(1)	24.02	24.13	24.02	15.00	11.14	13.11	946	24.02	24.13	24.02	15.00	11.14	13.11	946
150	150	150	610	613	610	381	259	213	360	610	613	610	381	259	213	(1)	610	613	610	381	283	333	430	610	613	610	381	283	333	430
8	7.91	7.91	29.02	29.13	29.02	18.50	11.69	10.39	1276	29.02	29.13	29.02	18.50	11.69	10.39	(1)	29.02	29.13	29.02	18.50	13.15	10.79	1760	29.02	29.13	29.02	18.50	13.15	10.79	1760
200	201	201	737	740	737	470	297	264	580	737	740	737	470	297	264	(1)	737	740	737	470	334	274	800	737	740	737	470	334	274	800
10	9.92	9.92	32.99	33.11	32.99	21.46	13.46	13.11	2222	32.99	33.11	32.99	21.46	13.46	13.11	(1)	32.99	33.11	32.99	21.46	14.96	12.60	2200	32.99	33.11	32.99	21.46	14.96	12.60	2200
250	252	252	838	841	838	545	342	333	1010	838	841	838	545	342	333	(1)	838	841	838	545	380	320	1000	838	841	838	545	380	320	1000
12	11.93	11.93	37.99	38.11	37.99	24.02	15.12	14.92	3322	37.99	38.11	37.99	24.02	15.12	14.92	(1)	37.99	38.11	37.99	24.02	19.96	16.46	2860	37.99	38.11	37.99	24.02	19.96	16.46	2860
300	303	303	965	968	965	610	384	379	1510	965	968	965	610	384	379	(1)	965	968	965	610	507	418	1300	965	968	965	610	507	418	1300
14	12.68	12.68	40.51	40.87	40.51	25.20	15.67	14.49	3190	40.51	40.87	40.51	25.20	15.67	14.49	(1)	40.51	40.87	40.51	25.20	20.47	17.44	3729	40.51	40.87	40.51	25.20	20.47	17.44	3729
350	322	322	1029	1038	1029	640	398	368	1450	1029	1038	1029	640	398	368	(1)	1029	1038	1029	640	520	443	1695	1029	1038	1029	640	520	443	1695
16	14.69	14.69	44.49	44.88	44.49	27.95	17.17	17.20	4730	44.49	44.88	44.49	27.95	17.17	17.20	(1)	44.49	44.88	44.49	27.95	21.18	18.19	5632	44.49	44.88	44.49	27.95	21.18	18.19	5632
400	373	373	1130	1140	1130	710	436	437	2150	1130	1140	1130	710	436	437	(1)	1130	1140	1130	710	538	462	2560	1130	1140	1130	710	538	462	2560
18	16.65	16.65	47.99	48.50	47.99	31.50	19.06	19.57	6204	47.99	48.50	47.99	31.50	19.06	19.57	(1)	47.99	48.50	47.99	31.50	22.83	19.17	7480	47.99	48.50	47.99	31.50	22.83	19.17	7480
450	423	423	1219	1232	1219	800	484	497	2820	1219	1232	1219	800	484	497	(1)	1219	1232	1219	800	580	487	3400	1219	1232	1219	800	580	487	3400
20	18.54	18.54	52.01	52.48	52.01	35.04	20.94	19.80	9240	52.01	52.48	52.01	35.04	20.94	19.80	(1)	52.01	52.48	52.01	35.04	24.61	23.82	9680	52.01	52.48	52.01	35.04	24.61	23.82	9680
500	471	471	1321	1333	1321	890	532	503	4200	1321	1333	1321	890	532	503	(1)	1321	1333	1321	890	625	605	4400	1321	1333	1321	890	625	605	4400
24	22.44	22.44	60.98	61.73	60.98	41.69	24.29	24.92	14960	60.98	61.73	60.98	41.69	24.29	24.92	(1)	60.98	61.73	60.98	41.69	27.17	24.61	15840	60.98	61.73	60.98	41.69	27.17	24.61	15840
600	570	570	1549	1568	1549	1059	617	633	6800	1549	1568	1549	1059	617	633	(1)	1549	1568	1549	1059	690	625	7200	1549	1568	1549	1059	690	625	7200
28	26.18	26.18	69.02	69.88	69.02	48.58	26.54	27.80	21780	69.02	69.88	69.02	48.58	26.54	27.80	(1)	69.02	69.88	69.02	48.58	32.28	28.46	22880	69.02	69.88	69.02	48.58	32.28	28.46	22880
700	665	665	1753	1775	1753	1234	674	706	9900	1753	1775	1753	1234	674	706	(1)	1753	1775	1753	1234	820	723	10400	1753	1775	1753	1234	820	723	10400
30	28.03	28.03	74.02	74.88	74.02	51.18	28.46	30.59	26796	74.02	74.88	74.02	51.18	28.46	30.59	(1)	74.02	74.88	74.02	51.18	34.65	31.50	28325	74.02	74.88	74.02	51.18	34.65	31.50	28325
750	712	712	1880	1902	1880	1300	723	777	12180	1880	1902	1880	1300	723	777	(1)	1880	1902	1880	1300	880	800	12875	1880	1902	1880	1300	880	800	12875
32	29.92	29.92	80.00	80.87	80.00	53.43	30.87	31.85	26004	80.00	80.87	80.00	53.43	30.87	31.85	(1)	80.00	80.87	80.00	53.43	36.93	34.25	35090	80.00	80.87	80.00	53.43	36.93	34.25	35090
800	760	760	2032	2054	2032	1357	784	809	11820	2032	2054	2032	1357	784	809	(1)	2032	2054	2032	1357	938	870	15950	2032	2054	2032	1357	938	870	15950
34	31.81	31.81	85.00	86.14	85.00	57.80	31.77	33.54	37840	85.00	86.14	85.00	57.80	31.77	33.54	(1)	85.00	86.14	85.00	57.80	38.66	36.22	38500	85.00	86.14	85.00	57.80	38.66	36.22	38500
850	808	808	2159	2188	2159	1468	807	852	17200	2159	2188	2159	1468	807	852	(1)	2159	2188	2159	1468	982	920	17500	2159	2188	2159	1468	982	920	17500
36	33.66	33.66	90.00	91.14	90.00	60.31	33.39	35.35	41580	90.00	91.14	90.00	60.31	33.39	35.35	(1)	90.00	91.14	90.00	60.31	41.34	38.98	45320	90.00	91.14	90.00	60.31	41.34	38.98	45320
900	856	856	2286	2315	2286	1532	848	898	19800	2286	2315	2286	1532	848	898	(1)	2286	2315	2286	1532	1050	990	20600	2286	2315	2286	1532	1050	990	20600



ASME CLASS 900 REDUCED BORE

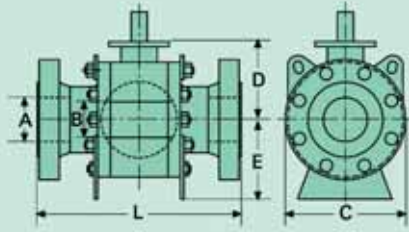
ALL TYPES			SIDE-ENTRY								WELDED BODY								TOP-ENTRY							
SIZE in/mm	A	B	L-RF	L-RTJ	L-WE	C	D	E	WEIGHT lb/kg*	L-RF	L-RTJ	L-WE	C	D	E	WEIGHT lb/kg*	L-RF	L-RTJ	L-WE	C	D	E	WEIGHT lb/kg*			
2 x 1½ 50 x 40	1.93 49	1.50 38	14.49 368	14.61 371	14.49 368	8.50 216	4.06 103	4.02 102	90 41	14.49 368	14.61 371	14.49 368	8.50 216	4.06 103	4.02 102	(1)	14.49 368	14.61 371	14.49 368	8.50 216	4.06 103	4.02 102	(1)			
3 x 2 80 x 50	2.91 74	1.93 49	15.00 381	15.12 384	15.00 381	9.49 241	4.06 103	4.02 102	114 52	15.00 381	15.12 384	15.00 381	9.49 241	4.06 103	4.02 102	(1)	15.00 381	15.12 384	15.00 381	9.49 241	4.06 103	4.02 102	(1)			
4 x 3 100 x 80	3.94 100	2.91 74	17.99 457	18.11 460	17.99 457	11.50 292	6.54 166	5.00 127	209 95	17.99 457	18.11 460	17.99 457	11.50 292	6.54 166	5.00 127	(1)	17.99 457	18.11 460	17.99 457	11.50 292	6.54 166	5.00 127	(1)			
6 x 4 150 x 100	5.91 150	3.94 100	24.02 610	24.13 613	24.02 610	15.00 381	8.19 208	6.42 163	451 205	24.02 610	24.13 613	24.02 610	15.00 381	8.19 208	6.42 163	(1)	24.02 610	24.13 613	24.02 610	15.00 381	8.19 208	6.42 163	(1)			
8 x 6 200 x 150	7.91 201	5.91 150	29.02 737	29.13 740	29.02 737	18.50 470	10.35 263	8.39 213	968 440	29.02 737	29.13 740	29.02 737	18.50 470	10.35 263	8.39 213	(1)	29.02 737	29.13 740	29.02 737	18.50 470	10.35 263	8.39 213	(1)			
10 x 8 250 x 200	9.92 252	7.91 201	32.99 838	33.11 841	32.99 838	21.46 545	11.57 294	10.59 269	1518 690	32.99 838	33.11 841	32.99 838	21.46 545	11.57 294	10.59 269	(1)	32.99 838	33.11 841	32.99 838	21.46 545	11.57 294	10.59 269	(1)			
12 x 10 300 x 250	11.93 303	9.92 252	37.99 965	38.11 968	37.99 965	24.02 610	13.70 348	12.91 328	2541 1155	37.99 965	38.11 968	37.99 965	24.02 610	13.70 348	12.91 328	(1)	37.99 965	38.11 968	37.99 965	24.02 610	13.70 348	12.91 328	(1)			
14 x 10 350 x 250	12.68 322	9.92 252	40.51 1029	40.87 1038	40.51 1029	25.20 640	13.70 348	12.91 328	2728 1240	40.51 1029	40.87 1038	40.51 1029	25.20 640	13.70 348	12.91 328	(1)	40.51 1029	40.87 1038	40.51 1029	25.20 640	13.70 348	12.91 328	(1)			
14 x 12 350 x 300	12.68 322	11.93 303	40.51 1029	40.87 1038	40.51 1029	25.20 640	13.70 348	12.91 328	2728 1240	40.51 1029	40.87 1038	40.51 1029	25.20 640	13.70 348	12.91 328	(1)	40.51 1029	40.87 1038	40.51 1029	25.20 640	13.70 348	12.91 328	(1)			
16 x 12 400 x 300	14.69 373	11.93 303	44.49 1130	44.88 1140	44.49 1130	27.76 705	15.75 400	15.04 382	3806 1730	44.49 1130	44.88 1140	44.49 1130	27.76 705	15.75 400	15.04 382	(1)	44.49 1130	44.88 1140	44.49 1130	27.76 705	15.75 400	15.04 382	(1)			
16 x 14 400 x 350	14.69 373	12.68 322	44.49 1130	44.88 1140	44.49 1130	27.76 700	15.83 402	17.32 440	3740 1700	44.49 1130	44.88 1140	44.49 1130	27.76 705	15.83 402	17.32 440	(1)	44.49 1130	44.88 1140	44.49 1130	27.76 705	15.83 402	17.32 440	(1)			
18 x 16 450 x 400	16.65 423	14.69 373	47.99 1219	48.50 1232	47.99 1219	31.10 790	17.28 439	17.40 442	5368 2440	47.99 1219	48.50 1232	47.99 1219	30.91 785	17.28 439	17.40 442	(1)	47.99 1219	48.50 1232	47.99 1219	30.91 785	17.28 439	17.40 442	(1)			
20 x 16 500 x 400	18.54 471	14.69 373	52.01 1321	52.48 1333	52.01 1321	31.10 790	17.28 439	17.40 442	6325 2875	52.01 1321	52.48 1333	52.01 1321	33.66 855	17.28 439	17.40 442	(1)	52.01 1321	52.48 1333	52.01 1321	33.66 855	17.28 439	17.40 442	(1)			
20 x 18 500 x 450	18.54 471	16.65 423	52.01 1321	52.48 1333	52.01 1321	33.66 855	18.90 485	19.09 485	7150 3250	52.01 1321	52.48 1333	52.01 1321	33.66 855	18.90 485	19.09 485	(1)	52.01 1321	52.48 1333	52.01 1321	33.66 855	18.90 485	19.09 485	(1)			
24 x 20 600 x 500	22.44 570	18.54 471	60.98 1549	61.73 1568	60.98 1549	40.94 1040	21.02 534	19.69 500	11880 5400	60.98 1549	61.73 1568	60.98 1549	40.94 1040	21.02 534	19.69 500	(1)	60.98 1549	61.73 1568	60.98 1549	40.94 1040	21.02 534	19.69 500	(1)			
30 x 24 750 x 600	28.03 712	22.44 570	74.02 1880	74.88 1902	74.02 1880	48.43 1230	23.94 608	24.88 632	19140 8700	74.02 1880	74.88 1902	74.02 1880	48.43 1230	23.94 608	24.88 632	(1)	74.02 1880	74.88 1902	74.02 1880	48.43 1230	23.94 608	24.88 632	(1)			
36 x 30 900 x 750	33.66 855	28.03 712	90.00 2286	91.14 2315	90.00 2286	57.48 1460	28.70 729	30.87 784	33770 15350	90.00 2286	91.14 2315	90.00 2286	57.48 1460	28.70 729	30.87 784	(1)	90.00 2286	91.14 2315	90.00 2286	57.48 1460	28.70 729	30.87 784	(1)			

* Weight figures are relevant to flanged end valves. - (1) Please consult the factory. - Note: For dimensions and weights in larger sizes consult the factory.

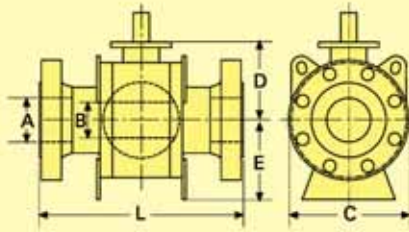
Dimensions C, D, E, and weights are subject to change without notice.

Face-to-face dimensions not listed in industry standards are subject to change without notice.

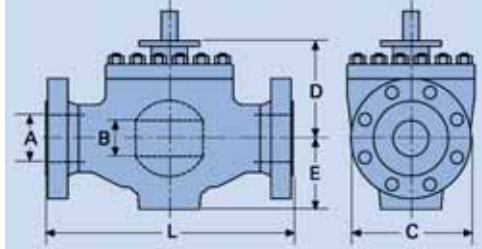
VB2/VB3



VW1



VT1



ASME CLASS 1500 FULL BORE

ALL TYPES			SIDE-ENTRY							WELDED BODY							TOP-ENTRY						
SIZE in/mm	A	B	L-RF	L-RTJ	L-WE	C	D	E	WEIGHT lb/kg*	L-RF	L-RTJ	L-WE	C	D	E	WEIGHT lb/kg*	L-RF	L-RTJ	L-WE	C	D	E	WEIGHT lb/kg*
2	1.93	1.93	14.49	14.61	14.49	8.50	4.17	4.09	110	14.49	14.61	14.49	8.50	4.17	4.09	(1)	14.49	14.61	14.49	8.50	8.35	3.43	123
50	49	49	368	371	368	216	106	104	50	368	371	368	216	106	104	(1)	368	371	368	216	212	87	56
3	2.91	2.91	18.50	18.62	18.50	10.51	6.57	5.04	213	18.50	18.62	18.50	10.51	6.57	5.04	(1)	18.50	18.62	18.50	10.51	9.29	4.65	337
80	74	74	470	473	470	267	167	128	97	470	473	470	267	167	128	(1)	470	473	470	267	236	118	153
4	3.94	3.94	21.50	21.61	21.50	12.24	7.05	6.69	436	21.50	21.61	21.50	12.24	7.05	6.69	(1)	21.50	21.61	21.50	12.24	11.57	5.91	612
100	100	100	546	549	546	311	179	170	198	546	549	546	311	179	170	(1)	546	549	546	311	294	150	278
6	5.67	5.67	27.76	27.99	27.76	15.51	10.24	9.17	1056	27.76	27.99	27.76	15.51	10.24	9.17	(1)	27.76	27.99	27.76	15.51	11.93	9.29	1320
150	144	144	705	711	705	394	260	233	480	705	711	705	394	260	233	(1)	705	711	705	394	303	236	600
8	7.56	7.56	32.76	33.11	32.76	19.02	11.97	11.42	1804	32.76	33.11	32.76	19.02	11.97	11.42	(1)	32.76	33.11	32.76	19.02	13.94	11.22	2420
200	192	192	832	841	832	483	304	290	820	832	841	832	483	304	290	(1)	832	841	832	483	354	285	1100
10	9.41	9.41	39.02	39.37	39.02	23.03	14.29	13.86	3300	39.02	39.37	39.02	23.03	14.29	13.86	(1)	39.02	39.37	39.02	23.03	15.67	13.11	3164
250	239	239	991	1000	991	585	363	352	1500	991	1000	991	585	363	352	(1)	991	1000	991	585	398	333	1438
12	11.30	11.30	44.49	45.11	44.49	27.91	16.42	16.73	4950	44.49	45.11	44.49	27.91	16.42	16.73	(1)	44.49	45.11	44.49	27.91	20.47	16.81	4437
300	287	287	1130	1146	1130	709	417	425	2250	1130	1146	1130	709	417	425	(1)	1130	1146	1130	709	520	427	2017
14	12.40	12.40	49.49	50.24	49.49	30.12	17.20	16.77	6270	49.49	50.24	49.49	30.12	17.20	16.77	(1)	49.49	50.24	49.49	30.12	21.65	17.95	5746
350	315	315	1257	1276	1257	765	437	426	2850	1257	1276	1257	765	437	426	(1)	1257	1276	1257	765	550	456	2612
16	14.17	14.17	54.49	55.39	54.49	33.39	18.70	19.41	8954	54.49	55.39	54.49	33.39	18.70	19.41	(1)	54.49	55.39	54.49	33.39	22.24	19.17	8558
400	360	360	1384	1407	1384	848	475	493	4070	1384	1407	1384	848	475	493	(1)	1384	1407	1384	848	565	487	3890
18	15.94	15.94	58.15	59.01	60.51	38.58	22.17	23.94	13629	N/A	N/A	N/A	N/A	N/A	N/A	N/A	58.15	59.01	60.51	38.58	23.31	20.75	11220
450	405	405	1477	1499	1537	980	563	608	6195	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1477	1499	1537	980	592	527	5100
20	17.91	17.91	65.51	66.38	65.51	39.96	24.29	25.39	19965	N/A	N/A	N/A	N/A	N/A	N/A	N/A	65.51	66.38	65.51	39.96	25.59	24.80	14692
500	455	455	1664	1686	1664	1015	617	645	9075	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1664	1686	1664	1015	650	630	6678
24	20.87	20.87	70.15	71.25	80.43	50.91	27.48	28.50	31416	N/A	N/A	N/A	N/A	N/A	N/A	N/A	70.15	71.25	80.43	50.91	25.98	25.20	25740
600	530	530	1782	1810	2043	1293	698	724	14280	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1782	1810	2043	1293	660	640	11700

ASME CLASS 2500 FULL BORE

ALL TYPES									SIDE-ENTRY									TOP-ENTRY								
SIZE in/mm	A	B	L-RF	L-RTJ	L-WE	C	D	E	WEIGHT lb/kg*	L-RF	L-RTJ	L-WE	C	D	E	WEIGHT lb/kg*	L-RF	L-RTJ	L-WE	C	D	E	WEIGHT lb/kg*			
2 50	1.65 42	1.65 42	17.76 451	17.87 454	17.76 451	9.25 235	4.72 120	5.00 127	194 88	17.76 451	17.87 454	17.76 451	9.25 235	8.35 212	3.86 98	264 120	17.76 451	17.87 454	17.76 451	9.25 235	8.35 212	3.86 98	264 120			
3 80	2.44 62	2.44 62	22.76 578	22.99 584	22.76 578	12.01 305	6.97 177	7.80 198	411 187	22.76 578	22.99 584	22.76 578	12.56 319	9.57 243	4.80 122	541 246	22.76 578	22.99 584	22.76 578	12.56 319	9.57 243	4.80 122	541 246			
4 100	3.43 87	3.43 87	26.50 673	26.89 683	26.50 673	14.02 356	8.94 227	9.17 233	836 380	26.50 673	26.89 683	26.50 673	14.33 364	11.77 299	6.46 164	1034 470	26.50 673	26.89 683	26.50 673	14.33 364	11.77 299	6.46 164	1034 470			
6 150	5.16 131	5.16 131	35.98 914	36.50 927	35.98 914	19.02 483	10.39 264	9.92 252	1694 770	35.98 914	36.50 927	35.98 914	19.02 483	13.98 355	9.57 243	2061 937	35.98 914	36.50 927	35.98 914	19.02 483	13.98 355	9.57 243	2061 937			
8 200	7.05 179	7.05 179	40.24 1022	40.87 1038	40.24 1022	24.41 620	15.08 383	13.35 339	2985 1357	40.24 1022	40.87 1038	40.24 1022	21.65 550	16.69 429	11.50 242	3102 1410	40.24 1022	40.87 1038	40.24 1022	21.65 550	16.69 429	11.50 242	3102 1410			
10 250	8.78 223	8.78 223	50.00 1270	50.87 1292	50.00 1270	29.33 745	17.83 453	16.61 422	4620 2100	50.00 1270	50.87 1292	50.00 1270	26.57 675	19.80 503	13.86 352	5720 2600	50.00 1270	50.87 1292	50.00 1270	26.57 675	19.80 503	13.86 352	5720 2600			
12 300	10.43 265	10.43 265	55.98 1422	56.89 1445	55.98 1422	34.25 870	20.47 520	18.98 482	7062 3210	55.98 1422	56.89 1445	55.98 1422	30.12 765	23.15 588	17.17 436	9240 4200	55.98 1422	56.89 1445	55.98 1422	30.12 765	23.15 588	17.17 436	9240 4200			

ASME CLASS 1500 REDUCED BORE

ALL TYPES			SIDE-ENTRY							WELDED BODY							TOP-ENTRY						
SIZE in/mm	A	B	L-RF	L-RTJ	L-WE	C	D	E	WEIGHT lb/kg*	L-RF	L-RTJ	L-WE	C	D	E	WEIGHT lb/kg*	L-RF	L-RTJ	L-WE	C	D	E	WEIGHT lb/kg*
2 x 1½ 50 x 40	1.93 49	1.50 38	14.49 368	14.61 371	14.49 368	8.50 216	4.09 104	4.06 103	90 41	14.49 368	14.61 371	14.49 368	8.50 216	4.09 104	4.06 103	(1)	14.49 368	14.61 371	14.49 368	8.50 216	8.31 211	3.15 80	110 50
3 x 2 80 x 50	2.91 74	1.93 49	18.50 470	18.62 473	18.50 470	10.51 267	4.09 104	4.06 103	150 68	18.50 470	18.62 473	18.50 470	10.51 267	4.09 104	4.06 103	(1)	18.50 470	18.62 473	18.50 470	10.51 267	8.31 211	3.15 80	216 98
4 x 3 100 x 80	3.94 100	2.91 74	21.50 546	21.61 549	21.50 546	12.24 311	6.54 166	5.04 128	268 122	21.50 546	21.61 549	21.50 546	12.24 311	6.54 166	5.04 128	(1)	21.50 546	21.61 549	21.50 546	12.24 311	9.29 236	4.65 118	447 203
6 x 4 150 x 100	5.67 144	3.94 100	27.76 705	27.99 711	27.76 705	15.51 394	8.39 213	6.61 168	627 285	27.76 705	27.99 711	27.76 705	15.51 394	8.39 213	6.61 168	(1)	27.76 705	27.99 711	27.76 705	15.51 394	11.30 287	6.02 153	827 376
8 x 6 200 x 150	7.56 192	5.67 144	32.76 832	33.11 841	32.76 832	19.02 483	10.43 265	9.02 229	1245 566	32.76 832	33.11 841	32.76 832	19.02 483	10.43 265	9.02 229	(1)	32.76 832	33.11 841	32.76 832	19.02 483	11.93 303	9.29 236	1547 703
10 x 8 250 x 200	9.41 239	7.56 192	39.02 991	39.37 1000	39.02 991	23.03 585	11.69 297	11.30 287	2248 1022	39.02 991	39.37 1000	39.02 991	23.03 585	11.69 297	11.30 287	(1)	39.02 991	39.37 1000	39.02 991	23.03 585	13.74 349	11.22 285	2801 1273
12 x 10 300 x 250	11.30 287	9.41 239	44.49 1130	45.12 1146	44.49 1130	26.57 675	14.17 360	13.66 347	3872 1760	44.49 1130	45.12 1146	44.49 1130	26.57 675	14.17 360	13.66 347	(1)	44.49 1130	45.12 1146	44.49 1130	26.57 675	15.91 404	12.99 330	337 1535
14 x 10 350 x 250	12.40 315	9.41 239	49.49 1257	50.24 1276	49.49 1257	29.53 750	14.17 360	13.66 347	4719 2145	49.49 1257	50.24 1276	49.49 1257	29.53 750	14.17 360	13.66 347	(1)	49.49 1257	50.24 1276	49.49 1257	29.53 750	15.91 404	12.99 330	4620 2100
14 x 12 350 x 300	12.40 315	11.30 287	49.49 1257	50.24 1276	49.49 1257	29.53 750	16.69 424	16.61 422	5500 2500	49.49 1257	50.24 1276	49.49 1257	29.53 750	16.69 424	16.61 422	(1)	49.49 1257	50.24 1276	49.49 1257	29.53 750	20.87 530	16.81 427	5936 2698
16 x 12 400 x 300	14.17 360	11.30 287	54.49 1384	55.39 1407	54.49 1384	32.48 825	16.69 424	16.61 422	6160 2800	54.49 1384	55.39 1407	54.49 1384	32.48 825	16.69 424	16.61 422	(1)	54.49 1384	55.39 1407	54.49 1384	32.48 825	20.87 530	16.81 427	7040 3200
16 x 14 400 x 350	14.17 360	12.40 315	54.49 1384	55.39 1407	54.49 1384	32.48 825	17.44 443	16.85 428	7139 3245	54.49 1384	55.39 1407	54.49 1384	32.48 825	17.44 443	16.85 428	(1)	54.49 1384	55.39 1407	54.49 1384	32.48 825	21.26 540	17.91 455	6820 3100
18 x 16 450 x 400	15.94 405	14.17 360	58.15 1477	59.01 1499	60.51 1537	36.06 916	19.06 484	19.76 502	10934 4970	N/A	N/A	N/A	N/A	N/A	N/A	N/A	58.15 1477	59.01 1499	60.51 1537	36.06 916	21.93 557	19.41 493	9240 4200
20 x 16 500 x 400	17.91 455	14.17 360	65.51 1664	66.38 1686	65.51 1664	38.78 985	19.06 484	19.76 502	11297 5135	N/A	N/A	N/A	N/A	N/A	N/A	N/A	65.51 1664	66.38 1686	65.51 1664	38.78 985	21.93 557	19.41 493	9900 4500
20 x 18 500 x 450	17.91 455	15.94 405	65.51 1664	66.38 1686	65.51 1664	38.78 985	21.85 555	23.74 603	16500 7500	N/A	N/A	N/A	N/A	N/A	N/A	N/A	65.51 1664	66.38 1686	65.51 1664	38.78 985	23.35 593	20.75 527	12980 5900
24 x 20 600 x 500	20.87 530	17.91 455	70.15 1782	71.25 1810	80.43 2043	46.06 1170	24.57 624	25.31 643	23925 10875	N/A	N/A	N/A	N/A	N/A	N/A	N/A	70.15 1782	71.25 1810	80.43 2043	46.06 1170	25.87 657	24.41 620	20240 9200

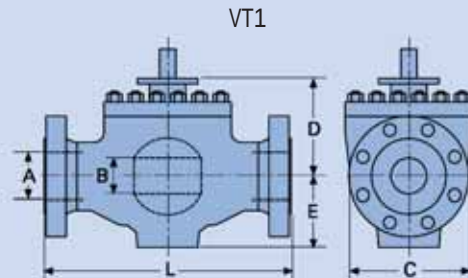
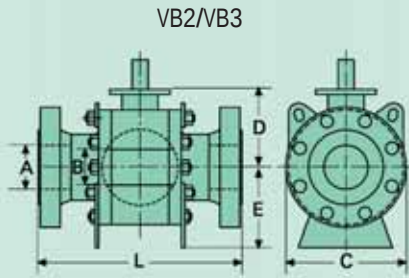
ASME CLASS 2500 REDUCED BORE

ALL TYPES			SIDE-ENTRY							TOP-ENTRY						
SIZE in/mm	A	B	L-RF	L-RTJ	L-WE	C	D	E	WEIGHT lb/kg*	L-RF	L-RTJ	L-WE	C	D	E	WEIGHT lb/kg*
2 x 1½ 50 x 40	1.65 42	1.50 38	17.76 451	17.87 454	17.76 451	9.25 235	4.72 120	5.00 127	143 65	17.76 451	17.87 454	17.76 451	9.45 240	8.35 212	3.86 98	176 80
3 x 2 80 x 50	2.44 62	1.65 42	22.76 578	22.99 584	22.76 578	12.01 305	4.72 120	5.00 127	341 155	22.76 578	22.99 584	22.76 578	12.01 305	8.35 212	3.86 98	352 160
4 x 3 100 x 80	3.43 87	2.44 62	26.50 673	26.89 683	26.50 673	14.02 356	6.97 177	7.80 198	581 264	26.50 673	26.89 683	26.50 673	14.02 356	9.57 243	4.80 122	660 300
6 x 4 150 x 100	5.16 131	3.43 87	35.98 914	36.50 927	35.98 914	19.02 483	8.94 227	9.17 233	1122 510	35.98 914	36.50 927	35.98 914	19.02 483	11.77 299	6.46 164	1474 670
8 x 6 200 x 150	7.05 179	5.16 131	40.24 1022	40.87 1038	40.24 1022	21.65 550	10.39 264	9.92 252	2398 1090	40.24 1022	40.87 1038	40.24 1022	21.65 550	13.98 355	9.57 243	2530 1150
10 x 8 250 x 200	8.78 223	7.05 179	50.00 1270	50.87 1292	50.00 1270	26.57 675	15.08 383	13.35 339	3659 1663	50.00 1270	50.87 1292	50.00 1270	26.57 675	16.69 424	11.50 292	4620 2100
12 x 10 300 x 250	10.43 265	8.78 223	55.98 1422	56.89 1445	55.98 1422	29.92 760	20.47 520	18.98 482	5621 2555	55.98 1422	56.89 1445	55.98 1422	29.92 760	19.80 503	13.86 352	7260 3300

* Weight figures are relevant to flanged end valves. - (1) Please consult the factory. - Note: For dimensions and weights in larger sizes consult the factory.

Dimensions C, D, E, and weights are subject to change without notice.

Face-to-face dimensions not listed in industry standards are subject to change without notice.



CLASS API 3000 FULL BORE

ALL TYPES		SIDE-ENTRY						TOP-ENTRY					
SIZE in/mm	A	B	L-RTJ	C	D	E	WEIGHT lb/kg*	L-RTJ	C	D	E	WEIGHT lb/kg*	
2 1/16 50	2.06 52.4	2.06 52.4	14.61 371	8.50 216	6.50 165	4.33 110	(1)	14.61 371	8.50 216	6.50 165	4.33 110	(1)	
3 1/8 80	3.12 79.3	3.12 79.3	17.13 435	9.49 241	7.87 200	5.51 140	(1)	17.13 435	9.49 241	7.87 200	5.51 140	(1)	
4 1/16 100	4.06 103.2	4.06 103.2	20.12 511	11.61 295	8.27 210	6.69 170	(1)	20.12 511	11.61 295	8.27 210	6.69 170	(1)	
5 1/8 150	5.12 130	5.12 130	24.13 613	16.65 423	10.83 275	10.16 258	(1)	24.13 613	16.65 423	10.83 275	10.16 258	(1)	
7 1/16 200	7.06 179.4	7.06 179.4	28.11 714	15.00 381	13.78 350	13.39 340	(1)	28.11 714	15.00 381	13.78 350	13.39 340	(1)	

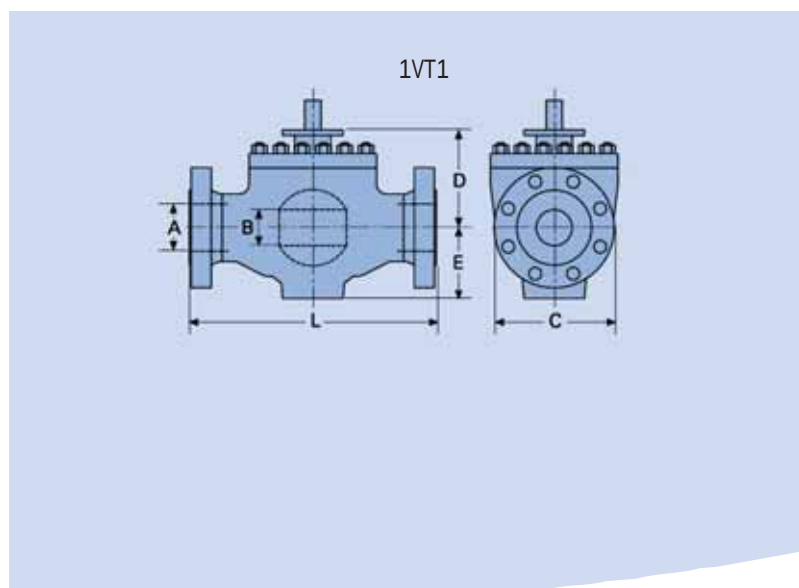
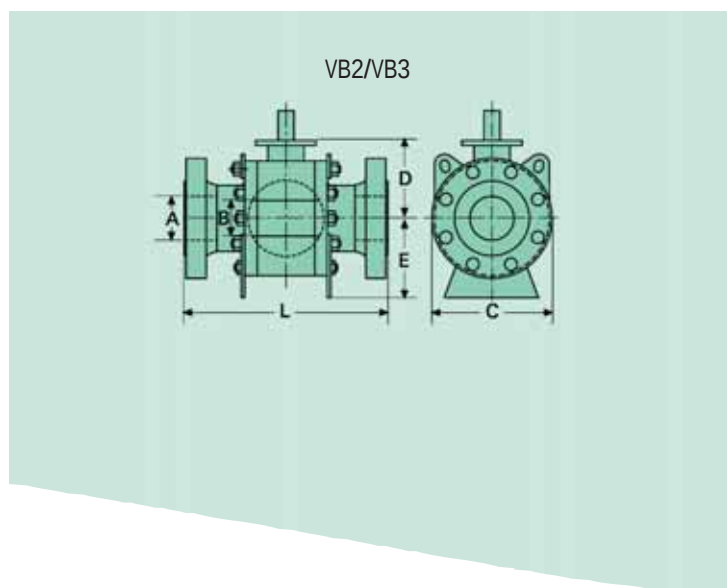
CLASS API 5000 FULL BORE

ALL TYPES		SIDE-ENTRY						TOP-ENTRY					
SIZE in/mm	A	B	L-RTJ	C	D	E	WEIGHT lb/kg*	L-RTJ	C	D	E	WEIGHT lb/kg*	
2 1/16 50	2.06 52.4	2.06 52.4	14.61 371	8.50 216	6.50 165	4.33 110	(1)	14.61 371	8.50 216	6.50 165	4.33 110	(1)	
3 1/8 80	3.12 79.3	3.12 79.3	18.62 473	10.51 267	7.87 200	5.51 140	(1)	18.62 473	10.51 267	7.87 200	5.51 140	(1)	
4 1/16 100	4.06 103.2	4.06 103.2	21.61 549	12.24 311	8.27 210	6.69 170	(1)	21.61 549	12.24 311	8.27 210	6.69 170	(1)	
5 1/8 150	5.12 130	5.12 130	28.62 727	16.65 423	11.02 280	10.16 258	(1)	28.62 727	16.65 423	11.02 280	10.16 258	(1)	
7 1/16 200	7.06 179.4	7.06 179.4	32.01 813	21.26 540	13.58 345	13.39 340	(1)	32.01 813	21.26 540	13.58 345	13.39 340	(1)	

CLASS API 10000 FULL BORE

ALL TYPES		SIDE-ENTRY						TOP-ENTRY					
SIZE in/mm	A	B	L-RTJ	C	D	E	WEIGHT lb/kg*	L-RTJ	C	D	E	WEIGHT lb/kg*	
2 1/16 50	2.06 52.4	2.06 52.4	20.51 521	11.02 280	7.68 195	8.43 214	(1)	20.51 521	11.02 280	7.68 195	8.43 214	(1)	
3 1/8 80	3.07 78	3.07 78	24.37 619	13.98 355	9.06 230	10.00 254	(1)	24.37 619	13.98 355	9.06 230	10.00 254	(1)	
4 1/16 100	4.06 103.2	4.06 103.2	26.38 670	17.95 456	12.05 306	11.02 280	(1)	26.38 670	17.95 456	12.05 306	11.02 280	(1)	

* Weight figures are relevant to flanged end valves. - (1) Please consult the factory. - Note: For dimensions and weights in larger sizes consult the factory.
Dimensions C, D, E, and weights are subject to change without notice.
Face-to-face dimensions not listed in industry standards are subject to change without notice.



CLASS API 3000 REDUCED BORE

ALL TYPES			SIDE-ENTRY					TOP-ENTRY				
SIZE in/mm	A	B	L-RTJ	C	D	E	WEIGHT lb/kg*	L-RTJ	C	D	E	WEIGHT lb/kg*
2 1/16x1 3/16 50x40	2.06 52.4	1.81 46	14.61 371	8.50 216	6.50 165	4.33 110	(1)	14.61 371	8.50 216	6.50 165	4.33 110	(1)
3 1/8x2 1/16 80x50	3.12 79.3	2.06 52.4	17.13 435	9.49 241	6.50 165	4.33 110	(1)	17.13 435	9.49 241	7.87 200	5.51 140	(1)
4 1/16x3 1/2 100x80	4.06 103.2	3.12 79.3	20.12 511	11.61 295	7.87 200	5.51 140	(1)	20.12 511	11.61 295	8.27 210	6.69 170	(1)
5 1/8x4 1/16 125x100	5.12 130	4.06 103.2	24.13 613	13.78 350	8.27 210	6.69 170	(1)	24.13 613	16.65 423	10.83 275	10.16 258	(1)
7 1/16x6 200x150	7.06 179.4	6.00 152.4	28.11 714	15.00 381	13.78 350	13.39 340	(1)	28.11 714	15.00 381	13.78 350	13.39 340	(1)

CLASS API 5000 REDUCED BORE

ALL TYPES			SIDE-ENTRY					TOP-ENTRY				
SIZE in/mm	A	B	L-RTJ	C	D	E	WEIGHT lb/kg*	L-RTJ	C	D	E	WEIGHT lb/kg*
2 1/16 50	2.06 52.4	2.06 52.4	14.61 371	8.50 216	6.50 165	4.33 110	(1)	14.61 371	8.50 216	6.50 165	4.33 110	(1)
3 1/8 80	3.12 79.3	3.12 79.3	18.62 473	10.51 267	7.87 200	5.51 140	(1)	18.62 473	10.51 267	7.87 200	5.51 140	(1)
4 1/16 100	4.06 103.2	4.06 103.2	21.61 549	12.24 311	8.27 210	6.69 170	(1)	21.61 549	12.24 311	8.27 210	6.69 170	(1)
5 1/8 150	5.12 130	5.12 130	28.62 727	16.65 423	11.02 280	10.16 258	(1)	28.62 727	16.65 423	11.02 280	10.16 258	(1)
7 1/16 200	7.06 179.4	7.06 179.4	32.01 813	21.26 540	13.58 345	13.39 340	(1)	32.01 813	21.26 540	13.58 345	13.39 340	(1)

CLASS API 10000 REDUCED BORE

ALL TYPES			SIDE-ENTRY					TOP-ENTRY				
SIZE in/mm	A	B	L-RTJ	C	D	E	WEIGHT lb/kg*	L-RTJ	C	D	E	WEIGHT lb/kg*
2 1/16 50	2.06 52.4	2.06 52.4	20.51 521	11.02 280	7.68 195	8.43 214	(1)	20.51 521	11.02 280	7.68 195	8.43 214	(1)
3 1/8 80	3.07 78	3.07 78	24.37 619	13.98 355	9.06 230	10.00 254	(1)	24.37 619	13.98 355	9.06 230	10.00 254	(1)
4 1/16 100	4.06 103.2	4.06 103.2	26.38 670	17.95 456	12.05 306	11.02 280	(1)	26.38 670	17.95 456	12.05 306	11.02 280	(1)

* Weight figures are relevant to flanged end valves. - (1) Please consult the factory. - Note: For dimensions and weights in larger sizes consult the factory.

Dimensions C, D, E, and weights are subject to change without notice.

Face-to-face dimensions not listed in industry standards are subject to change without notice.



Spare parts list

SIDE-ENTRY - MOD VB2/VB3

Part #	Part	DN < 4" (1) Spare parts quantity		DN 4" (1) Spare parts quantity		DN > 4" (1) Spare parts quantity	
		Start up	2 years op.	Start up	2 years op.	Start up	2 years op.
4	Seat	-	(3)	-	(3)	-	(3)
10a	Body gasket	(2)	(3)	(2)	(3)	(2)	(3)
10b	Stem gasket	(2)	(3)	(2)	(3)	(2)	(3)
10c	Stem cover gasket	(2)	(3)	(2)	(3)	(2)	(3)
10d	Seat gasket	(2)	(3)	(2)	(3)	Not applicable	Not applicable
10e	Trunnion gasket	(2)	(3)	Not applicable	Not applicable	Not applicable	Not applicable
11a	Body O-ring	(2)	(3)	(2)	(3)	(2)	(3)
11b	Stem O-ring	(2)	(3)	(2)	(3)	(2)	(3)
11c	Stem cover O-ring	(2)	(3)	(2)	(3)	(2)	(3)
11d	Seat O-ring	(2)	(3)	(2)	(3)	(2)	(3)
11e	Trunnion O-ring	(2)	(3)	Not applicable	Not applicable	Not applicable	Not applicable

WELDED BODY - MOD VW1

Part #	Part	DN < 4" (1) Spare parts quantity		DN 4" (1) Spare parts quantity		DN > 4" (1) Spare parts quantity	
		Start up	2 years op.	Start up	2 years op.	Start up	2 years op.
10b	Stem gasket	(2)	(3)	(2)	(3)	(2)	(3)
10c	Stem cover gasket	(2)	(3)	(2)	(3)	(2)	(3)
10e	Trunnion gasket	(2)	(3)	Not applicable	Not applicable	Not applicable	Not applicable
11b	Stem O-ring	(2)	(3)	(2)	(3)	(2)	(3)
11c	Stem cover O-ring	(2)	(3)	(2)	(3)	(2)	(3)
11e	Trunnion O-ring	(2)	(3)	Not applicable	Not applicable	Not applicable	Not applicable

TOP-ENTRY - MOD VT1

Part #	Part	DN < 4" (1) Spare parts quantity		DN 4" (1) Spare parts quantity		DN > 4" (1) Spare parts quantity	
		Start up	2 years op.	Start up	2 years op.	Start up	2 years op.
4	Seat	-	(3)	-	(3)	-	(3)
10a	Body gasket	(2)	(3)	(2)	(3)	(2)	(3)
10b	Stem gasket	(2)	(3)	(2)	(3)	(2)	(3)
10c	Stem cover gasket	(2)	(3)	(2)	(3)	(2)	(3)
10d	Seat gasket	(2)	(3)	(2)	(3)	Not applicable	Not applicable
10e	Trunnion gasket	(2)	(3)	Not applicable	Not applicable	Not applicable	Not applicable
10h	Spring holder ring gasket	(2)	(3)	(2)	(3)	Not applicable	Not applicable
11a	Body O-ring	(2)	(3)	(2)	(3)	(2)	(3)
11b	Stem O-ring	(2)	(3)	(2)	(3)	(2)	(3)
11c	Stem cover O-ring	(2)	(3)	(2)	(3)	(2)	(3)
11d	Seat O-ring	(2)	(3)	(2)	(3)	(2)	(3)
11e	Trunnion O-ring	(2)	(3)	Not applicable	Not applicable	Not applicable	Not applicable

NOTES: (1) Reference to nominal port size - (2) One set per 10 valves - (3) One set per 1 valve



API 6D & 6A trunnion-mounted ball valves



24" (600 mm)
class 300
side-entry for high
temperature.



Fully welded 48" (1200 mm)
class 600 for underground service.



Fully welded
56" (1400 mm)
class 600 with
pipe pups.



20" (500 mm) class
1500 side-entry.

24" (600 mm) class 1500
side-entry.



Engineering data

Valve testing

100% of valves manufactured by Valbart are tested in excess of API 6D requirements, prior to shipping.

LEAKAGE RATES

Standard	Soft seated	Metal-seated	Cryogenic
API 6D	ISO 5208 Rate A	ISO 5208 Rate D	(1)
BS 12266-1	—	Rate D	(1)

(1) Please consult the factory.

Rate D is standard. Higher leakage rates can be achieved upon request

Standard performance tests

- Visual and dimensional check
- High-pressure hydrostatic shell test
- High-pressure hydrostatic seats test
- Low-pressure air seats test
- Stem torque check

LEAKAGE RATES

ASME CLASS	Rating ⁽¹⁾			Body Test			H.P. seat test			Air Seat Test		
	psi	bar	kg/cm ²	psi	bar	kg/cm ²	psi	bar	kg/cm ²	psi	bar	kg/cm ²
150	275	19	19.3	413	28.5	29	303	20.9	21	100	6	7
300	720	50	51	1080	75	77	792	55	56	100	6	7
600	1440	99	101	2160	148.5	152	1584	108.9	111	100	6	7
900	2160	149	152	3240	223.5	228	2376	163.9	167	100	6	7
1500	3600	248	253	5400	372	380	3960	272.8	278	100	6	7
2500	5988	413	421	8982	619.5	632	6587	454.3	463	100	6	7
API 3000	3000	207	210	4500	310.5	315	3300	227.7	231	100	6	7
API 5000	5000	345	352	7500	517.5	528	5500	379.5	387	100	6	7
API 10000	10000	690	703	15000	1035	1055	11000	759	773	100	6	7

(1) Typical only - rating pressure may change for different materials.

Conversion factors 1 bar = 14.50 psi and 1 bar = 0,981 kg/cm² and 1 bar = 100 kpa 1 kg/cm² = 14.22 psi
 $1^{\circ}\text{F} = (1.8 \times ^{\circ}\text{C}) + 32$ and $1^{\circ}\text{C} = (^{\circ}\text{F} - 32) / 1.8$

Quality standards

American Petroleum Institute – API

	API 6D	API 6D SS	API 6FA	API 598
	API 6A	API 607	API 605	

American Society of Mechanical Engineers – ASME

ASME B 16.5	ASME B 16.10	ASME B 16.25
ASME B 16.34	ASME B 31.3	ASME B31.8
ASME B 46.1		

International Organization for Standardisation – ISO

ISO 9001:2000	ISO 14313
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British Standards

BS EN 10222	BS EN 9000
BS 1560	BS EN 10213
BS 4504	BS EN 12266
BS 5351	

Manufacturers Standardization Society – MSS

MSS SP 6	MSS SP 25
MSS SP 44	MSS SP 45
MSS SP 55	MSS SP 61
MSS SP 72	

Compliant to CSA Z245



How to avoid problems

- Ball valves will be transported and stored with the ball in the fully open position.
- Flanged ends and welded ends will be protected.
- End protection will be removed only when the valve is installed in the line.
- Valves will be handled using the proper lifting lugs.
- Valves will be stored according to Valbart storage procedures. Long-term storage should be avoided.
- In case of long storage the valve shall be flushed and cycled a few times.
- For welded-end valves, advise Valbart if there will be a post-weld heat treatment (transition pups may be necessary to avoid damages to seals).
- Flush and clean the line before operating the valve.
- Make sure no line-testing fluid is left in the line and/or the valve body.
- Avoid leaving the valve body filled with salt water to prevent internal corrosion.
- During line-testing, valves will be left in the partially open position for the minimum possible amount of time.
- Standard ball valves will be used for on-off service only. Throttling service (use of the valve with the ball partially open) can damage the seats.

- Make sure to take into consideration the actual service conditions when selecting materials for O-rings and seat inserts.
- Always specify anti-explosive decompression material for valves to be used in high-pressure gas service.
- Make sure the selected actuator has been properly sized (an oversized actuator can be as dangerous as an undersized one).
- Advise Valbart of cycle frequency to ensure proper sizing of actuator.
- Do not use the actuator to lift the valve.

Warranty clause

WARNING: Valbart will not accept claims for damages due to poor handling on site and/or for valves service conditions different from the ones for which they have been manufactured and sold by Valbart.

In any case in which Valbart is not made aware of the actual use of the valves (e.g., valves ordered by a third party, such as a Distributor) it is the responsibility of the third party and/or the user to verify the suitability of the valve materials and design for the medium and service conditions in which the valves will be used.

Materials

Body and trim material

Carbon Steel

A105N A216 WCB A216 WCC

Low temperature Carbon steel

A350 LF2 A352 LCB A352 LCC

Low alloy steel

AISI 4140 A694 F65 A694 F52
A694 F60 A350 LF3
API 6A 60K (A694 F60 Mod)

Martensitic Stainless Steel

A182 F6A A182 F6NM
A217 CA15 A487 CA6NM

Austenitic Stainless Steel

A182 F316 A182 F316L
A182 F316LN-Mod. A182 F347
A182 F44 (6% Mo) A182 FXM-19
(UNS S31254) (Nitronic 50)
A351 CF8M A351 CF3
A351 CF3M

Precipitation Hardening Stainless Steel

A564 Gr 630 H1150M (UNS S17400)

Duplex Stainless Steel

A181 F51 (UNS S31803)
A182 F53 (UNS S31750)
A182 F55 (UNS S31760)
A890-4A (UNS S31803)
A890-6A (UNS S32760)

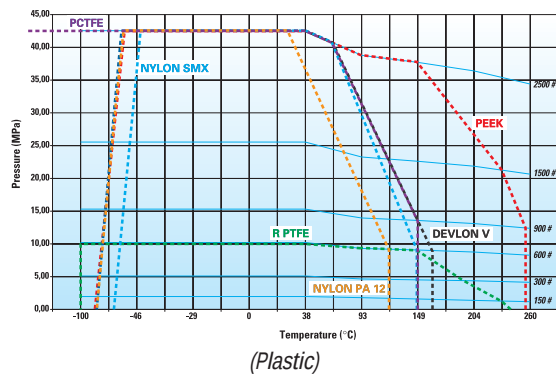
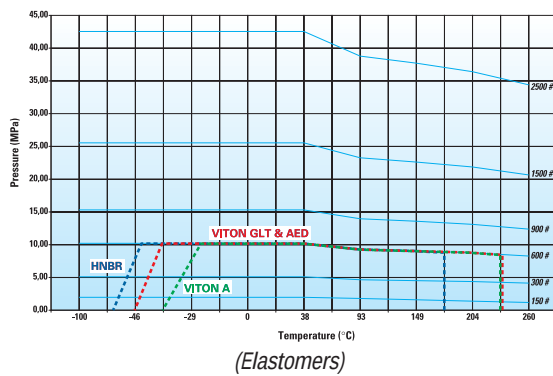
Nickel Alloys

Incoloy 825 (UNS N08825) Incoloy 925 (UNS N09925)
Inconel 625 (UNS N06625) Inconel 718 (UNS N07718)
Inconel 750 (UNS N07750)
Monel 400
Monel K500

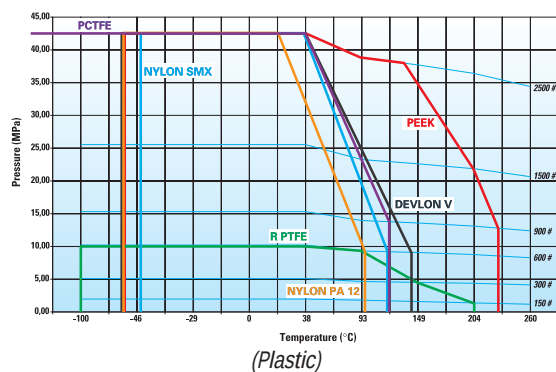
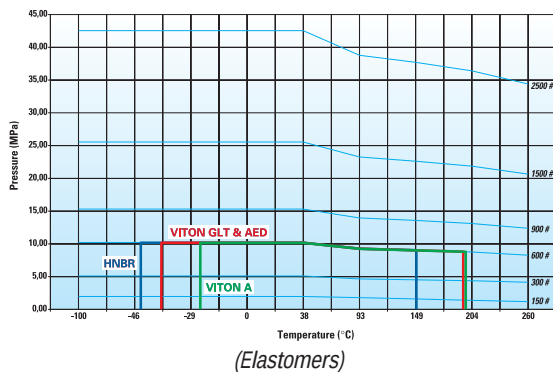
SEAT INSERT AND SEALS MATERIALS OPERATING (DYNAMIC) LIMITS*

Material	Temp. °C		Pressure Class		Size	
	Min.	Max.	Seat Insert	Seal	Seat Insert	Seal
Nylon SMX	-40	120	2500	N/A	64"	N/A
Lauramid (Nylon 12G)	-60	100	2500	N/A	64"	N/A
Devlon (Nylon 6)	-60	140	2500	N/A	64"	N/A
Peek	-60	220	2500	N/A	36"	N/A
PTFE Glass Filled (25%)	-100	200	600	N/A	24"	N/A
PTFE Carbon Filled (25%)	-100	180	300	N/A	24"	N/A
PCTFE	-196	150	2500	N/A	36"	N/A
HNBR-Therban	-40	150	600	2500	64"	64"
FKM A (Viton A)	-29	180	600	2500	64"	64"
FKM GLT (Viton GLT)	-40	180	600	2500	64"	64"
FKM AED	-29	180	600	2500	64"	64"
PTFE + Elgiloy Springs	-196	200	N/A	2500	N/A	36"

SEAT INSERTS – STATIC/SHORT PERIOD*



SEAT INSERTS – OPERATING CONDITION*



*Given as reference only.

Cv flow coefficients

API 6D

Bore (inches)	Classes					
	150	300	600	900	1500	2500
2	420	420	400	330	330	250
2½	690	690	610	520	510	320
3 x 2	200	200	200	190	180	200
3	1200	1050	1000	910	820	500
4 x 3	600	600	600	590	550	560
4	2200	2100	1850	1800	1700	1100
6 x 4	800	800	790	790	780	745
6	5150	5100	4600	4380	3800	2500
8 x 6	2150	2150	2150	2150	2150	2150
8	9500	9400	9000	8500	7400	5300
10 x 8	4300	4300	4300	4450	4450	4100
10	15000	15000	14700	14500	11500	8300
12 x 10	7550	7550	7550	8000	9000	7550
14 x 10	6000	6000	6000	6100	6100	-
12	23000	23000	22500	21100	18000	13000
14 x 12	14000	14000	14000	12800	13000	-
16 x 12	9100	9100	9100	8900	8900	-
14	28000	28000	28000	25000	21000	-
16 x 14	15000	15000	15000	14200	14100	-
16	37200	37200	37200	34500	27500	-
18 x 16	21000	21000	21000	19200	19000	-
20 x 16	15300	15300	15300	13800	12000	-
18	49000	49000	49000	45000	37000	-
20 x 18	28400	28400	28400	25000	25000	-
20	59000	59000	59000	55200	47800	-
24 x 20	28200	28200	28000	25100	20600	-
22	68200	68200	68200	62000	54000	-
24	92000	92000	92000	83800	70000	-
30 x 24	36000	36000	36000	32900	-	-
26	110000	110000	110000	98500	-	-
28	121000	121000	121000	113000	-	-
30	145000	144000	144000	130000	-	-
36 x 30	64000	64000	64000	61500	-	-
32	170000	170000	170000	151000	-	-
36 x 32	87000	87000	87000	69500	-	-
36	210000	210000	210000	198200	-	-
40	267500	267500	267500	-	-	-
42 x 36	96700	96700	96000	-	-	-
42	280000	280000	280000	-	-	-
48	384000	384000	384000	-	-	-
56 x 42	89000	89000	89000	-	-	-
56	521000	521000	521000	-	-	-

API 6D

Bore (inches)	Classes		
	3000	5000	10000
1 13/16	270	270	230
2 1/16	350	350	300
3 1/8	1000	940	890
4 1/16	1750	1700	1600
5 1/8	2900	2700	2450
7 1/16	5930	5400	5220



Data for calculation of flow

The coefficient of flow C_v expresses the rate of flow in gallons per minute at 60°F water with a pressure drop of 1 psig across the valve. The C_v coefficients for the various types and sizes, shown in the tables, have been determined from actual flow tests.

NOTE: K_v is the metric equivalent of C_v .

$$K_v = C_v \times 0.85$$

FOR LIQUIDS:

$$(1) Q_L = C_v \sqrt{\frac{\Delta P}{G_L}}$$

$$(2) \Delta P = G_L \left(\frac{Q_L}{C_v} \right)^2$$

WHERE: Q_L = Flow in U.S. gallons per minute.

ΔP = $(P_1 - P_2)$ Pressure drop in psi

G_L = Specific gravity of liquid (water = 1 at 60°F)

FOR GASES:

$$(3) Q_g = 1360 C_v \sqrt{\frac{\Delta P}{G_g T}} \cdot \sqrt{\frac{P_1 + P_2}{2}}$$

$$(4) \Delta P = P_1 - \sqrt{P_1^2 - 2 G_g T \left(\frac{Q_g}{1360 C_v} \right)^2}$$

WHERE: Q_g = Volumetric flow of gas (SCFH)

G_g = Specific gravity of gas at standard conditions (air at atmosphere and 60°F = 1)

T = Absolute temperature of gas (°F + 460)

NOTE: For gas, max. $\Delta P = 1/2 P_1$, and min.

$P_2 = 1/2 P_1$, and P_1, P_2 are absolute pressures (psia)



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FCD VBEEBR1010-01 Printed in France

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